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TUBERCULOUS LESIONS IN THE CHEST IN CHILDHOOD

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The incidence of tuberculous infection usually increases with the age of children, and, as one might expect, with the greater incidence there comes more tuberculous lesions, but from infancy to childhood the scene changes a great deal. A glance at the mortality curves shows that the number of deaths from tuberculosis during the period of childhood is relatively small. Perhaps there are several reasons why this is true. During infancy when there is exposure it is usually with some close associate who fondles and kisses the infant, thus day after day transmitting tubercle bacilli to its body. As the period of childhood approaches and continues, casual exposure becomes more frequent. The child who meets occasionally with a tuberculous patient receives his infection, but the exposure is not continued. One must also take into consideration that from those homes where there are open cases a fair percentage of the children die in infancy; thus leaving a smaller number for such termination during the period of childhood. Krause has called attention to the fact that during the first two years of life the lymph nodes are not functioning very efficiently, to filter out foreign material, including pathogenic organisms, thus bacilli carried to them may not be retained and may reach the blood stream in fair sized numbers. If the infant is already allergic from its infection, whenever the tubercle bacilli find lodgment, whether it be in the lung parenchyma or in the meninges of the brain or spinal cord, it is on allergic soil. Acute inflammation results and, if the allergy is high, even necrosis is not uncommon. But, when the period of childhood arrives the lymph nodes have becomes more compact in structure and serve more efficiently than they have before or ever will again. Thus tubercle bacilli carried to them are retained unless they are present in such large numbers, or allergy is so high that they destroy the lymph nodes themselves. Thus during the period of childhood we see lymph node tuberculosis as the prevailing type of lesion, and of all parts of the body the lymph nodes draining the lungs, such as those in the region of the hilum and tracheobronchial regions are most frequently involved.

Perhaps another reason that the number of deaths during childhood from tuberculosis is relatively low is that allergic reactions are often rather slight. In the childhood group we have children who have developed their tuberculous infection, with a high state of allergy in infancy or some subsequent time, who have overcome the bacilli to a certain extent and the allergy has had opportunity to wane. Again, we probably have a good many very mild reactions from casual contact, and here we must not overlook the possibilities of infections from the bovine bacillus which ordinarily is not highly virulent in the human body. Perhaps these mild infections do not result in that marked allergic state so dangerous to the child that we get from extensive and prolonged contact to the human bacilli with their high virulence.

The most common form of tuberculosis seen during this age period is the childhood type. In the examination of a large number of children one sees childhood tuberculosis in most all its phases of development and retrogression from acute inflammatory pneumonic processes in the lung with definitely enlarged hilum shadows on the same side (Fig. 1) to the very sharply outlined and discrete Ghon's tubercle, which is well ossified,

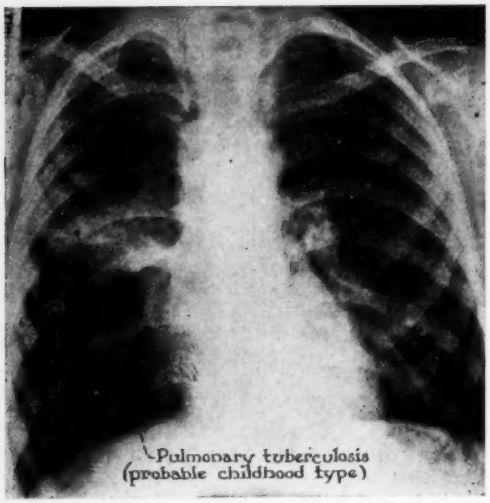

Fig. 1A. M. X. Age 8 years. Made from roengenogram taken on December 12, 1924. Definite parenchymal infiltration extending from hilum to the lateral chest wall in the region of the second interspace on the right side. Mother suffering from tuberculosis. Father died of laryngitis.

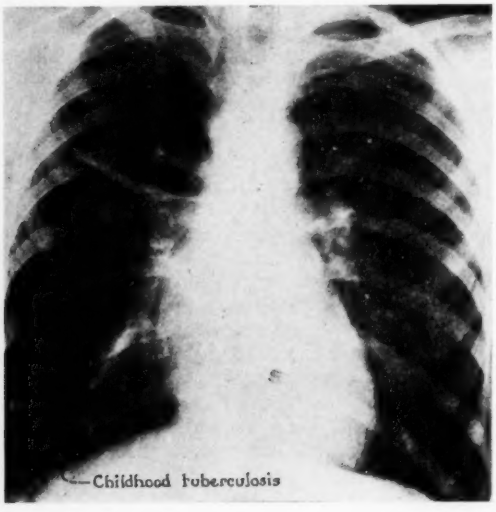

Fig. 1B M. X. From chest of same child as Fig. 1A. Made from roentgenogram taken on February 26, 1929. Thickening interlobar suptum between right middle and upper lobes with some fibrosis above it. Enlargement and calcification in the right hilum.

regions of the hilum and tracheobronchial lymph nodes. It is a well known fact that enlargements of these lymph nodes may be and frequently are, due to other causes than tuberculosis, just as temporary enlargements of the cervical lymph nodes are more frequently due to other causes than tuberculosis. However, McPhedran has shown that lymph nodes of the tracheobronchial group free from the calcium, even though they are enlarged, cast no shadows that will differentiate them from the shadows of the main stem and larger branches of the air and blood bearing trees. Many x-rays made during and immediately after acute and serious infections in children showed no evidence of lymph nodes of the tracheobronchial group. This is an outstanding contribution since we had formerly believed that many of the acute infections produce enlargement of the lymph nodes that cast distinct shadows on the x-ray film. The only enlargements without calcium which are detectable by the x-ray film ,and this includes areas of caseations, are those which are large enough to bulge into the lung field. It has been pointed out that in anteroposterior films showing small and oval mediastinal bulges, the cause often is distortion of the patient's position, and in such cases the shadow of the sternum will be seen to the right or left of the spinal shadow. Therefore, in the past rotation has produced shadows which have been mistaken for mediastinal enlargements. Moreover, in children under the age of four years, because of their inability to cooperate, the films have often been exposed during expiration. They have also been taken during systole and under these conditions the mediastinum appears broad. In the earlier x-ray studies of the chests of children a very common diagnostic error was made by labeling

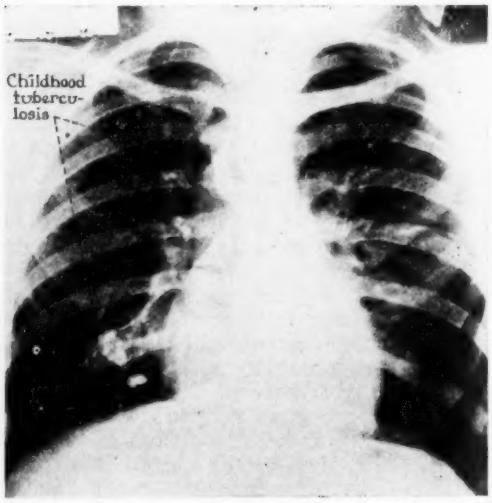

Fig. 2. E. J. Age 13 years. Made from roentgenogram taken on April 1, 1926. Large primary foci right lobe. Calcification in right hilum. Films made on March 24, 1922 showed the same condition. Father died of pulmonary tuberculosis. Mother said to have bronchitis and asthma.

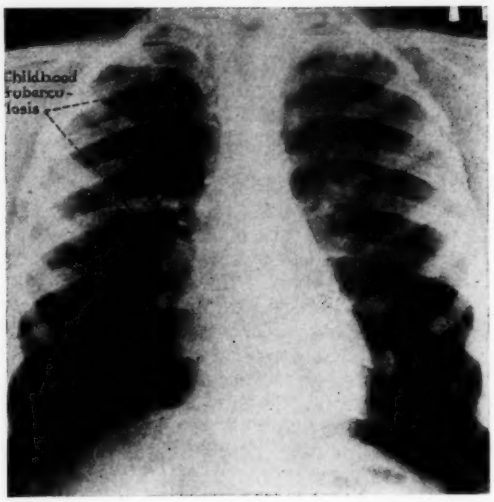

Fig. 3 R. B. Age 8 years. Made from roentgenogram taken on May 2, 1922. Childhood tuberculosis manifested by primary focus in the left lower lobe and calcification of the hilum and tracheobronchial nodes on the right side. Father has tuberculosis. Mother said to have bronchitis. Von Pirquet test strongly positive.

all increased densities in the region of the lung hilum as areas of calcification. McPhedran has shown that round shadows may be cast by a vascular trunk directed towards the target so that the primary ray is approximately axial, or that semioval shadows are often recorded when the plane of the curve of a vascular trunk is directed slightly above or below the axis of the ray. He showed that slight rotation of the patient about his perpendicular axis is of great value in deciding whether increased densities in the hilum are due to calcium deposits. McPhedran rotates the patient so that the cardiac border coincides in the film with the right border of the spine. An exposure made in this position has enabled him to identify nearly all densities on both sides of the border of the spine. This position is also helpful in detecting intrapulmonary lesions which may not be sufficiently clear on posteroanterior films. Another position of great value is the oblique position described by Pritchard and McPhedran. This may reveal pulmonary lesions otherwise not detected and also calcium deposits at the carina. Such deposits, as much as an inch in diameter, may escape detection in antero-posterior films. In contour calcium deposits may be oval, rounded, irregularly nodular, pear-shaped, etc., but must persist when films are taken at various angles. When great care is exercised one may determine with a fairly high degree of accuracy the presence or absence of calcium deposits in the region of the lung hilum and the tracheobronchial lymph nodes. Once deposited it is believed that calcium is not reabsorbed, and the longer it exists the more likely is the disease to become walled off. Therefore, it is of great importance to study by x-ray calcium deposits in the hilum and tracheobronchial lymph nodes. It is not always necessary to find a lung lesion either in the form of an acute inflammation or a Ghon tubercle. When enlargements or calcification or both are present in the hilum or tracheobronchial lymph nodes (Fig. 3), the lesion in the lung may be in some obscure place so that it is not seen on the x-ray film, or it may have healed by resolution and completely disappeared. Again there may be no lesion in the lung. Krause has shown that when tuberculous processes exist in parts of the body quite remote from the lung the disease is with the hilum and tracheobronchial lymph nodes well calcified on the same side (Fig. 2). In cases where the Ghon tubercle is well developed and calcification is definitely present in the region of the hilum we have no way of determining, with high degree of accuracy just when the progressive lesions appeared. They may have been present in early infancy or at any subsequent time up to a few months before the examination. Indeed, calcium deposits have been found in lymph nodes in the bodies of infants as young as five months. Therefore, our former belief that a process which contains calcium is one of long standing is not necessarily true in every case. The childhood type of tuberculosis in boys and girls between the ages of two and twelve years requires special discussion as to diagnosis, treatment, prognosis and prevention.

In diagnosis much depends upon the history of exposure, although if this is not obtained one can not rule out tuberculosis. There are so many undiagnosed cases of adult tuberculosis in homes daily exposing children that a negative history of exposure is not very significant. The physical examination is of little avail. The Eustace Smith and D'Espine's signs give us little and, in most cases, no information of importance. Interscapular dullness of percussion is the source of very slight or no information and is often misleading. The physician who clings to these signs today may be likened to the man who drives an ox-cart in automobile and airplane days. Examinations on a good many thousand children in different parts of America have shown that the two most important findings in the diagnosis of childhood tuberculosis are: First, a positive cutaneous tuberculin test, and, second: x-ray changes in the lung parenchyma or in the

reflected fairly early in the region of the lung hilum. In other words, tubercle bacilli are carried to the lung hilum where they produce enlargements of the hilum nodes. Again we must not overlook the fact that the lesion may be primary in the hilum and tracheobronchial nodes; that bacilli reaching the body through one of the portals of entry may not find lodgment until they reach these nodes where they produce primary lesions.

When symptoms are present in childhood they are of great importance. The first symptoms may be mistaken for those of influenza or even a bad cold. They may consist of loss of weight, loss of play-spirit, temperature elevation. One must never be misled by the absence of symptoms. All too frequently the child is taken to the physician, and because of no definite symptoms is told that tuberculosis does not exist. It has been demonstrated repeatedly and proved most conclusively that the child without a suggestion of symptoms may have a frank tuberculous process of a progressive nature.

Treatment should be instituted in the case of every boy and girl with the childhood type of tuberculosis. It is true that some will heal their disease completely, but we do not know who they are nor do we have any method of examination so refined as to help us determine with a high degree of certainly when healing is complete, with the possible exception of the cutaneous tuberculin test. Therefore, we must treat all.

The treatment necessary will depend considerably upon the stage of the disease when diagnosis is made. If there is a definite inflammatory process in the lung, with corresponding enlargement in the region of the hilum and tracheobronchial lymph nodes, most certainly strict bed rest should be recommended. We can not say that the disease would not heal spontaneously without any treatment, but experience has shown that it is safer to prescribe strict bed rest in such cases. If the disease is diagnosed after calcium or bone has been deposited in the primary lung focus, or the focus has healed by resolution and definite calcium deposits can be seen in the tracheobronchial or hilum nodes, strict bed rest is not necessary, but most certainly every case should be kept under very careful observation and an attempt made to build up or maintain an excellent general condition of the child's body.

Such children usually are able to carry on their school work, and if the physician is conscientious he will report all such cases of childhood tuberculosis to the health department. This in many places immediately excludes the child from school by state law. In order to meet this situation there is a strong tendency at present to provide special schools for tuberculous children where the communities are large enough to justify them, or special rooms in schools in smaller communities. To these schools and rooms the children from homes without sufficient funds to employ private physicians may be sent from charity clinics. Private physicians may send the children among their clientele to such schools and still keep them under observation. Thus the child is given an opportunity to continue his mental development at the same time as he continues the healing of his tuberculous process.

Lymanhurst School for Tuberculous Children, founded by Dr. F. E. Harrington has a capacity of approximately 160 and provides treatment for boys and girls, most of whom have definite evidence of the childhood type of tuberculosis. The schedule at Lymanhurst is approximately as follows:

The children live at their homes and come to the school at 8:30 each school day. At 8:50 they assemble for diet, which consists of cooked cereal, whole milk and sugar, with a caloric value of 100. They pass to their class-rooms, where they remain from 9 to 11. This is followed by a twenty-minute recess, during which time the playground is carefully supervised and suitable games are played. The period from 11:20 to 12:30 is spent in the class-room. At 12:30 the children pass to the dining-room, where dinner it served. This consists of easily digested foods with a value of 900 to 1,000 calories. Care is taken that vitamines and minerals are supplied in sufficient quantities. The rest period is from 1:30 to 2:30 p. m. During this period each child lies upon a comfortable bed, and most of the time is spent in sleep. At 2:30 class work is resumed and at 3:30 food, consisting of dry cereal, milk and sugar, valued at 100 calories, is served. The children are then permitted to go to their homes.

The second institution of this kind developed at Berkeley, California. is the result of the vision and hard work of Drs. W. P. Shepard and Chesley Bush and their associates. This school is proving to be a tremendous help in the tuberculosis program of Alameda County.

Other cities in the United States are contemplating the development of such schools for their boys and girls with the childhood type of tuberculosis. These schools not only provide for the conservation and regulation of energy expenditure, close medical and nursing supervision, diet, etc., but they provide for the health education of the girls and boys enrolled, as well as many parents, guardians and organizations interested in their welfare. It is hoped that this education will protect them in later life against diet fads,

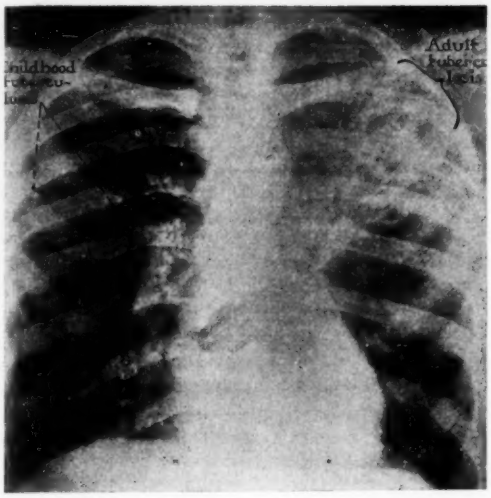

Fig. 4. W. B. Age 21 years. Made from roentgenogram of the chest taken on June 8, 1929. Childhood tuberculosis (Ghon tubercle right third interspace near periphery. Numerous calcifications, right hilum). Adult type tuberculosis involving upper lobe of left lung. No history of exposure.

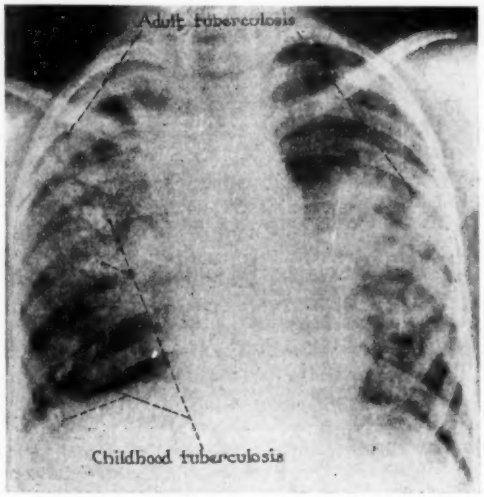

Fig. 5 C. E. Age 9 years. Made from roentgenogram taken June 1, 1926. Childhood tuberculosis (Ghon tubercles right base and calcifications in right hilum). Adult type tuberculosis involving the greater part of the right and the central portion of the left lung. Exposure to tuberculosis through father. Von Pirquet negative. Died soon after this examination.

heliotherapy fads, and other fads so destructive to the well-being of young men and young women.

The prognosis in cases of childhood tuberculosis at this age period was formerly thought to be excellent, when evidence of calcification could be seen on the x-ray film and when the child appeared to be in good health. For the time being it is good in most cases, but there are enough exceptions to make us extremely conservative when discussing the future of a child with such definite findings, even though they be calcified. If the intimate exposure to tubercle bacilli is continued the highly fatal adult type of pulmonary tuberculosis may result (Figs. 4 and 5). Again, although calcification may be extensive we have no method of determining when the entire lesion is calcified and walled off. In other words, there may be adjacent to the calcium deposits, areas of caseation which are potential menaces as long as they persist. From the Lymanhurst School we have discharged children whom we believed to have their disease well healed, but who soon after died of acute tuberculosis. Therefore, he who renders a good prognosis to all cases with calcification in the hilum does not have all the facts in hand, nor as good an understanding of the subject as is possible. It has been shown that even the immediate prognosis may not be good, for the rupture of a lymph node may distribute the caseous material to other parts where, if it falls upon allergic soil, it will produce acute inflammation and even fatal disease. But what about the more remote prognosis? Here we have been inclined to believe that it was also good, but Rathbun, Opie and others dampened our enthusiasm by showing that it is the case with childhood tuberculosis who develops the adult type. At the postmortem table Opie has found that the adult type of tuberculosis never develops in the absence of the childhood type of infection. Rathbun has shown that among boys and girls of high school age who develop the adult and killing type of tuberculosis it is possible to demonstrate on the x-ray film old childhood lesions with calcification in fifty per cent of the cases. From his experience, which is large, and his judgment, which is excellent, he believed that the three or four per cent of boys and girls who have childhood type of tuberculosis furnish seventy-five per cent of the teen age boys and girls who develop the fatal adult type of disease. Our experience with tuberculosis in the teen ages is very similar to that of Rathbun.

Perhaps the best method of prevention of tuberculosis in childhood is through careful study of the epidemiology of the disease. In any community it is possible through two procedures to determine with a fairly high degree of certainty the number of children who have been infected, and from those the number who have developed the childhood type of disease. These procedures consist first of tuberculin testing all children of a community, preferably by the intracutaneous

methods. When this has been done properly one has detected most of the children who have been infected with tubercle bacilli. The number will vary with conditions in the community, such as economic status of the people, modes of living and, most of all, the incidence of the adult type of tuberculosis in that community. Ten per cent may react, as Slater has found in a rural community, or seventy-two per cent may react, as Hetherington has found in a great city.

The second procedure of x-raying all children who react positively. By no means will every reaction show evidence of childhood tuberculosis. In fact the majority of children with positive tuberculin tests do not show the characteristic findings of childhood tuberculosis. Perhaps when tubercle bacilli found lodgment in the tissues of their bodies a small tubercle was formed, and the bacilli became so walled off that nothing further is heard or seen of them except that a hypersensitiveness to tuberculin is observed. Again one must keep in mind that our present methods of making examinations by the x-ray are quite crude, and that slight disease in the region of the hilum may remain undetected. But it is the frank childhood type of tuberculosis that we are seeking to detect by the x-ray examination. Where these procedures have been carried out it has been shown that approximately three to four per cent of the entire childhood population shows evidence of chlidhood tuberculosis. By these two procedures we have rounded up, so to speak, three groups; those who react negatively to tuberculin; those who react positively and who have been definitely infected, and those who react positively and also have x-ray evidence of the childhood type of disease.

From this point our preventive work is carried on to the second and third groups of children. When a child reacts positively to tuberculin, in all probability that child has come in contact directly or indirectly with some person or animal suffering from tuberculosis or acting as a carrier. The contact may have been most indirect and casual, as in case tubercle bacilli are borne to the child's body on fruits and other foods from persons located many miles, perhaps hundreds, from the child. In other words, tubercle bacilli have reached the body of the child and have gained lodgment; they are producing or have produced tubercle. So our next step, the x-ray examination, may tell us something of whether the exposure has been intimate and prolonged. We feel that mos tchildren who have developed frank childhood tuberculosis, whether it be in a recent state of development or apparently well calcified, have had intimate and prolonged contact exposure.

Therefore, when these cases have been found, we should make a desperate effort to locate the source of the exposure. We must look to their close associates. Here the private physician can do much for he often knows the families better than any other health worker. When he has a case of tuberculosis in the home, such as a father or mother, he is not discharging his full duty to the family when he treats that patient alone. It is his duty to apply the cutaneous tuberculin test to every member of the family and to as many of the other contacts as possible. He should next x-ray the chests of those who react positively (Figs. 6 A, B and C).

The physician in private practice who finds evidence of childhood tuberculosis in the body of a child has not discharged his full duty to the child, the family, or the community until he has made a careful search among all the close associates of the child for the source of the tubercle bacilli. The children who manifest no evidence except positive tuberculin tests should have x-ray examinations every six months and preferably every three months as long as the health appears good, and oftener if symptoms appear. For such repeated x-ray examinations, a single film of the chest usually will suffice. This reduces the expense of the examination considerably. The treatment of the cases with childhood tuberculosis above described is also a preventive measure, because it has been shown that it prevents, to a certain extent, the adult and killing type of tuberculosis in later life.

Children with no contact exposure should have frequent periodic examinations. These examinations should include the cutaneous tuberculin test for all who have previously reacted negatively, and x-ray films for all who have previously reacted positively. A study of the allergic reaction may also be helpful in prevention. If it becomes markedly positive it is a fair indication that the child needs treatment to prevent the development of extensive disease, and even an attempt at desensitization with extremely minute doses of tuberculin has been suggested.

The adult type of pulmonary tuberculosis occurs during the period of childhood but it is not common.

Tuberculous pleurisy has been reported rather commonly in children after the fifth year of life; however, with x-ray studies, it has been found to exist frequently in earlier years than we formerly believed. Frequently pleurisy with effusion not accompanied or preceded by acute respiratory infection appears in children who have been in perfect health. It is secondary to lesions somewhere

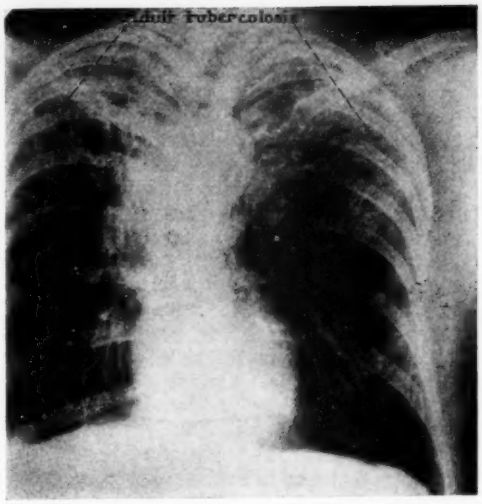

Fig. 6A. M. G. Age 52 years. Made from roentgenogram of the chest taken on December 11, 1928. Extensive pulmonary tuberculosis throughout the greater part of the right and the upper half of the left lung. Symptoms date from March, 1925. Tubercle bacilli in the sputum. Lesions in chests of two sons are illustrated in 6B and 6C.

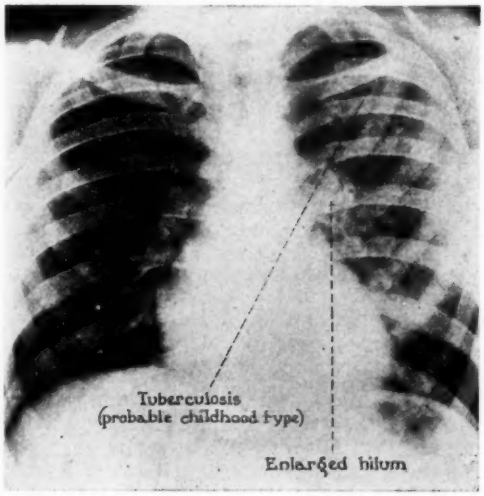

Fig. 6B. S. G. Age 13 years. Made from roentgenogram taken on December 6, 1928. Pulmonary involvement in the left first and second interspaces with definite enargement of the hilum on the left side. Probably childhood type of tuberculosis. The family was advised to have this son examined after the father's disease was detected, although he apparently is in excellent health. Von Pirquet positive.

in the body, and is rather frequently associated with tuberculous peritonitis. It occurs in children who are extremely allergic, and therefore is regarded as an allergic reaction. At the onset there may be excruciating pain over the involved side. After the effusion

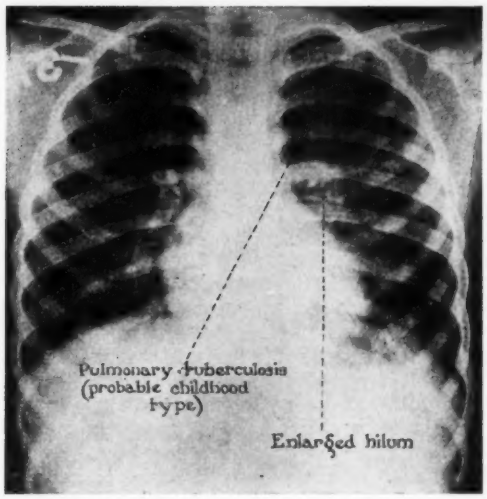

Fig. 6C. W. G. Age 7 years. Made from roentgenogram taken on December 6. 1928. Pulmonary involvement left first and second interspaces with definite enlargement of the hilum. Probable childhood type of tuberculosis. The family was advised to have this son examined after the father's disease was detected although he is apparently in excellent health.

forms the pain disappears. In other cases there is no pain. Often there is considerable temperature elevation for a few days. Frequently the symptoms are of short duration; hence the numerous failures to diagnose the condition. In fact, a physician is not consulted in many such cases. If seen while pain is present one may elicit friction rubs over the involved side. When the pain has disappeared the signs of fluid in the pleural cavity are usually elicited. The x-ray is of great value in diagnosing such cases. The fluoroscopic examination usually shows obliteration of the costophrenic angle and lagging or immobilization of the diaphrogm on the side of the disease. One may be able to see a fluid line. X-ray films should be made in every case not only to confirm the diagnosis but also to aid in the search for tuberculous involvement in the lung parenchyma. The cutaneous tuberculin test is nearly always markedly positive. The removal of a small amount of fluid to be centrifuged and studied under the microscope and for animal inoculation should be a routine practice. The treatment consists of reducing movement of the affected side with adhesive tape, etc., and liberal use of sedatives while pain is present. Strict bed rest should be employed in every case and continued over three months or longer. One must never forget that a tuberculous pleurisy is frequently accompanied by parenchymal lesions subpleurally located which may escape detection even by

the x-ray. Therefore the patient should be treated as one with pulmonary tuberculosis. If marked symptoms such as temperature elevation, rapid pulse, etc., exist, the removal of a part of the fluid and the introduction of enough oxygen or filtered air to bring about an atmospheric pressure in the pleural cavity may hasten the process. Once this is begun the pneumothorax should be continued over a considerable period of time. The effusion, if not present in too large amounts, in all probability is nature's method of separating the visceral from the parietal pleura, thus relieving the patient of pain and bringing about partial compression of the lung. In other words, it is an attempt to immobilize the parts involved. Therefore, the fluid should not be removed unless pneumothorax is begun or it is present in such large quantities as to cause pressure symptoms. The prognosis in such cases is usually very good. Even without treatment many get well, but a fair percentage will later report with parenchymal tuberculosis.

Tuberculous pericarditis often accompanies pleurisy and peritonitis. Through the lymphatic channels the pericardial cavity communicates very freely with the peritoneal and pleural cavities. On the other hand, tuberculous pericarditis may exist in children independent of pleurisy and peritonitis. In such cases one finds disease in the mediastinal lymph nodes or in some other part of the body. The disease usually is secondary although some authors have reported it as a primary process. Morris and Little have made a careful study of the physical findings in pericarditis and find that the cardiohepatic angle in pericardial effusion is usually an acute angle. The area of relative cardiac dullness is pyriform and generally extends upward to the first interspace. Widening of the area of dulness and of the x-ray shadows is best determined with the patient in the recumbent posture. They have found the most reliable sign of fluid in the pericardium is shifting of dulness when the patient is changed from the recumbent to the erect posture. They have also observed a marked decrease of visible pulsations in the shadow on fluoroscopic examination. In such cases one may also elicit signs of compression of the left lung posteriorly. These include bronchial breathing, bronchophony or egophony. The signs are particularly noticeable at the angle of the left scapula in children. The cutaneous tuberculin test as in cases of pleurisy is of great value. The removal of pericardial effusion for direct smear studies and animal inoculation is also of great value in confirming the diagnosis. The treatment consists of strict bed rest with comfortable atmospheric conditions, good foods and close medical observation. Aspiration alone apparently is not of much avail. Pneumopericardium has been employed with good results by some workers. Pericardotomy which brings about an interior drainage into the spaces surrounding the pericardium has been practiced. Recently Lemaire has used lipiodol in the treatment of tuberculous pericarditis. The prognosis is only reasonably good.

Tuberculosis of the myocardium may occur in the form of large tubercles or tuberculous infiltration or miliary tubercles. In a group of 71 cases approximately forty per cent were less than fifteen years old. The symptoms and findings are palpitation, diffuse pulsation, rapid heart action, feeble heart sounds, dsypnea, cyanosis, unconsciousness, general edema and sudden death. Usually the disease is associated with tuberculosis of the bronchial lymph nodes and the lungs. Tuberculous endocarditis also occurs in childhood. In such cases there is usually no history of tonsillitis, chorea, rheumatism or scarlet fever, but a tuberculous process is often found in some other part of the body.

THE TREATMENT OF THE NEUROSES.

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Oklahoma City, Okla.

(Read before the New Mexico Medical Society, at its Forty-Seventh Annual Meeting at Taos, New Mexico, June 12-14, 1929.)

I feel that every paper upon the treatment of the neuroses should first contain a plea for a thorough neurological examination. Most of us, in the practice of medicine, become so busy that we neglect to give thorough neurological consideration to our patients. We forget to take the deep reflexes; we forget to take the Romberg sign; we forget to test for Babinski's, and frequently forget to take the eye reflexes. If we just stop to consider, we know that we can take the important reflexes of the body in less than five minutes, and I wish to make a plea that we do these neurological examinations upon every case that presents itself; otherwise, we may be very unfair to our patients and make serious mistakes.

For a few moments, let us consider the older conceptions of mental illness. First, there came to us, probably from religious origin, the idea that a nervous person was "possessed of the devil," and, if we stop to consider the history of the care of the mentally ill for the past three thousand years, we see what a horrible conception this was. We see how terribly unfair the people in the past were to the mentally ill.

Beginning at about 850 B. C., we find that the mentally ill were well cared for; that they were carried to the temples and that goodness and mercy were showered upon

them in an attempt to ameliorate their suffering and return them to a healthy state of mind. They were treated as human beings. Then, at the time of Hippocrates, our great hero of medicine, we find that he was treating his mentally ill in hospitals especially equipped for their care. We may continue further and come down to Egypt and find that they had mental hospitals long before the time of Christ. Then, shortly after the beginning of the Christian era, we find that the mental hospitals had disappeared out of Egypt and were disappearing from the civilized world, generally. We find that the mental hospitals had completely disappeared by 300 A.D., and from 300 A.D. to the beginning of the nineteenth century constitutes fifteen hundred years of the greatest persecution that the human family ever visited upon its members. The mentally ill were chained up in dungeons; they were punished; they were whipped; they were scourged, and were frequently put to death because of their illness. This treatment of them rested upon the idea that they were possessed of the devil.

In the beginning of the nineteenth century, that is, about 1820, Dorothea Dix, a schoolteacher in Massachusetts, began to investigate the alms houses of that commonwealth. She found the most horrible conditions existing everywhere. She went before the legislature of that state and made a report, which they failed to believe. However, they conducted their individual investigations into the horrors of the alms houses, and a revolution in the care of the mentally ill was started by this little schoolteacher, which revolution spread to all the civilized countries of the world.

Even at the present time, with all of our advanced ideas in civilization, we frequently hold the nervous individual responsible for his nervousness. Only recently, a professor of medicine said, "neurotic, erotic and tommy-rotic." He expressed in this short sentence his contempt for the nervously ill.

The twentieth century brought with it some newer conceptions of mental illness. The psychologist of the present century has been doing some remarkable work.

First, we must consider, just for a moment, behaviorism. Behaviorism is the type of psychology brought out by Professor Watson and his school, the central idea being that all human conduct and all behavior is a conditioned reflex, the reflexes being practically unconscious to the individual. The second hypothesis that has been gaining ground during the past thirty years is the hypothesis of the "unconscious." The hypothesis of the unconscious can very well be stated as taking the conditioned reflexes of "behaviorism" and permeating them with emotion; that is, hate, fear and love are somehow combined with the whole of human conduct. The hypothesis of the unconscious carries with it the idea that we are controlled very largely by the thing which we call the unconscious mind; that the motivating influences of life are very largely unconscious to us. Some of the best investigators believe that ninety per cent of human conduct is motivated by the unknown. Behaviorism is generally taught in the American University. The hypothesis of the unconscious is not so universally taught west of the Mississippi River as east, and I am very sorry to say that but few medical schools are teaching either type of psychology.

In the treatment of the neurotic or the psychoneurotic individual, we must always take into consideration what is frequently spoken of as "the transfer." The transfer, as I discuss it here, means that confidence which exists between the patient and the physician. Almost never does a patient go to a physician who has not, first somehow established a confidence in this physician. In order to do the very best work with any individual with a neurosis, this transfer must be very good and, as we say, positive. As this transfer becomes more and more complete and the confidence better, more and more the physician takes the part of the father. That is the way it should be, because all people with a neurosis are more or less infantile and very naturally make this sort of a transfer to the physician. Sometimes, without any apparent reason, this positive transfer becomes negative and the patient very quickly develops an extreme hatred of the physician. She leaves his office in a rage and may spend many weeks or months scandalizing and criticizing the physician in whom, until recently, she had perfect confidence. This experience, I am sure, many physicians present have had.

Bearing in mind the hypothesis of the conditioned reflex, which behaviorism teaches, and especially holding in mind the hypothesis of the unconscious, and that the patient is not responsible for his illness, we will now take up the discussion of treatment.

Suggestive therapeutics is perhaps the oldest form of mental treatment known, and, in the hands of many people, it has carried along many neurotic individuals, but because all neuroses are due to conflicts, largely in the unconscious mind, this sort of treatment is never thoroughly curative. However, a physician with a strong personality who becomes the dominant and dominating father, in the presence of the patient, may make strong suggestions of health to the indivi-

dual, and for a time, at least, the patient operates upon these suggestions and feels a sense of relief; but suggestive therapeutics is never curative, it is only palliative. A great deal of electrical therapy and other physical applications, have value, largely in reinforcing suggestion; however, when the faith and confidence of the patient in the physician is broken, the patient is usually worse than before. But, in the hands of many physicians, suggestion is a strong therapeutic agent.

Another type of treatment, which is used by many neurologists, is frankly explaining to the patient what constitutes a neurosis. This is done purely as an explanation, and never as a criticism. This explanation, together with the assurance that there is no organic disease, proves enough for a large class of mildly nervous patients. Of course, this is always preceded by a thorough neurological examination.

One of the best treatments for the neurotic individual is to let this victim of a neurosis talk. Let him talk freely; let him tell his story; let him talk as long as he will talk, providing there is time to listen. Let him tell his troubles; let him lay bare his family troubles or his fancied troubles. Let him feel that whatever is told will never be repeated. Very frequently this talking, this telling of his troubles, will lessen the inner tensions to such an extent that they are definitely relieved. Let him tell his conflicts; let him discuss the things which he wishes to do and the things which he wishes not to do. Let him discuss his sense of guilt, and remember that every victim of a neurosis has a morbid sense of guilt buried somewhere in his unconscious. Let the patient talk all of this material; let him talk it freely; but here I wish to warn you against one of the greatest dangers possible, and that is the danger of advising one with a neurosis. One can never advise a patient relative to family affairs; one can never advise a patient relative to the sense of guilt; one can only explain. Above all, one must never advise a patient to go against his moral sense of right and wrong. Many men and many women have been driven to state hospitals by attempting to follow advice wrongly given, which advice led them into the thing which they themselves consider immoral.

The severer types of the neuroses, which will not yield to the types of treatments already suggested, may be treated by analysis. Certain types of analysis have been running through the treatment of people with neuroses, for all the ages. Letting the patient tell his story constitutes a mild analysis. It remained for the Vienna School of Psychiatry to develop the idea of the unconscious and the idea of making the unconscious largely conscious, bringing up the conflicts, bringing up the repressed hate and the repressed fear into the conscious mind. This is what is known today in psychiatry as psychoanalysis. Freud began his work about thirty-five years ago. His work was quickly taken up and improved upon by such men as Sadger, Jung, Ferenczi, and in England by Jones, and in America by Brill, Jelleffe, Kempf and Superintendent W. A. White of the Federal Insane Asylum. This method of attacking the human mind has been received by some as a great advance in mental therapeutics; by others it has received extreme criticism; but, on the whole, this method is gaining ground throughout the civilized world. In order to apply this method of therapeutics, the patient must know that he is ill; he must know that he has suffered, and that he wants to get well. Many neurotic patients do not want to get well; they are unconsciously happy in their suffering. The suffering brings to them an infantile pleasure, which meeting reality as an adult would fail to give. They must be willing to work, because ninety-five per cent of the work is done by the patient. The patient being analyzed comes into the private office, lies down upon a couch, with a physician out of sight, and the patient proceeds to discuss and to tell anything, and everything, which passes through his mind. The physician, if he be well trained and has been analyzed himself, will, for the first fifty or sixty hours, say very little, and then very carefully attempt to explain some of the mental mechanisms which the individual has laid bare by his "free association." This "free association" means to tell anything that floats through the mind, no matter where the conversation leads. In this way, and this way only, can the disturbing mechanisms located in the hypothetical thing called the unconscious mind, be brought to the surface and discussed in the light of adult reasoning.

A moment ago I said that the physician himself must have been analyzed. He must have been analyzed, otherwise he would be attempting to advise and explain the patient's conduct upon his own unconscious wishes. In all treatment of the neuroses, we must keep in mind that the nervous individual has a vast amount of infantile material which he has carried over from his early life, otherwise he would not be a neurotic. We must keep in mind that his conduct is based largely upon the mistakes and errors in his training before ten years of age; in fact, the great majority of the mechanisms motivating the conscious adult life were built when the patient was very young.

Then, too, there is a great class of patients who are so infantile that they must be hospitalized, and frequently put to bed and receive the care intended for infants. Here, I wish to warn against the so-called "rest treatment." Of course, as Oberndorf of New York City says, "It relieves the physician of work and allows the patient to make his regression." Yet, I wish to emphasize the fact that hospitalization, rest and physio-therapy in the proper hands, brings great relief to a great class of patients. The central idea in this, as in all types of treatment, should be to convert the infantile neurotic patient into a well adult.

TRANSVERSE SUPRACLAVICULAR INCISION FOR PHRENECTOMY OR PHRENIC NERVE AVULSION.

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(Read before the New Mexico Medical Society, at its Forty-Seventh Annual Meeting, at Taos, New Mexico, June 12-14, 1929.)

The addition of surgical procedures to the armamentarium of the phthisiotherapist marks a decided advance in the treatment of selected cases of pulmonary tuberculosis.

No surgical operation, however extensive, can eradicate tuberculosis, especially in the lung. Surgery can never supersede medical and sanatorium treatment of pulmonary tuberculosis. It is not a substitute for the older accepted forms of treatment, but it is a most important supplement to all forms of treatment, when, after a reasonable trial, these fail to arrest the activity of the lesions. It shortens and makes more certain favorable progress in that class of cases which, without the advantages of surgery, would be hopeless.

To be of value in pulmonary tuberculosis, surgery must be invoked before the patient's reserve is depleted. There are a number of cases which, in the judgment of an experienced phthisiologist are unfavorable from the onset; many more cases which improve and for a time remain stationary, then, even under ideal conditions, more or less rapidly decline. These cases are unable to establish a resistance balance against the disease. A careful clinical and roentgenological study will frequently disclose intrathoracic factors which if overcome would be of inestimable value in restoring a resistance balance to the disease.

The interest of these patients can be best served by the cooperation between the internist, who early recognizes the limitations of his therapy, and the surgeon, who appreciates the substandard character of these surgical risks.

The least formidable of the surgical operations for tuberculosis of the lungs is phrenectomy, or phrenic nerve avulsion.

Phrenic nerve avulsion is a comparatively minor operation, performed under local anesthesia. It frequently leads to marked improvement. This improvement, as a rule, is only temporary. In exceptional cases a clinical cure may be effected.

There are three types of incisions: (a) vertical, (b) high transverse, (c) low transverse, or supraclavicular.

The supraclavicular incision recommended by Schreiber, of Davos, has several advantages over the other two. It affords more room; the landmarks are more easily determined; the course of the nerve low in the neck below the omohyoid muscle is less variable and less likely to be mistaken for other nerves. The adhesions to the sheath of the scalenus anticus muscle and cervical fascia at the apex of the thorax, which may interfere with the extraction of an adequate length of nerve, are more accessible and more easily separated than through the higher incision. The resultant scar is inconspicuous. The internal jugular, and occasionally a high-lying subclavian vein, may add a difficulty. These should always be identified and retracted. Recognizing and guarding important and dangerous structures is the best assurance for safety.

The patient lies on his back with head extended and turned to opposite side. The area is prepared, skin iodized, scalenus anticus muscle palpated; the line of proposed incision, centering over the scalenus anticus muscle, is marked by a delicate scratch with a needle. Area carefully toweled, about 10 c.c. one-half of one per cent novocain infiltrated in the skin and platysma myoides muscle. Skin and platysma muscle are incised; usually one or two veins must be ligated; the scalenus is identified and exposed by retracting the sternocleidomastoid muscle and internal jugular vein forward and the omohyoid muscle backward. The areolar tissue over the muscle, with occasional lymph glands, is retracted and the phrenic nerve can usually be seen running downward, forward and inward across the scalenus muscle. In a few cases it may traverse the mesial surface of the muscle or lie beneath the fascia. The nerve is lightly pinched with a forceps to elicit a diaphragmatic reflex. The pinching of the nerve stimulates sudden contraction of the diaphragm, causing an audible inspiratory effort. This positively identifies the phrenic nerve. The nerve within its sheath is then isolated, pulled up on a hook, injected with a few drops of one-half per cent novocain, is then clamped with a blunt straight forceps and slowly retracted by rolling, windlass fashion, on the forceps. The tip

of this forceps may be steadied in the ring of another forceps; slow, steady traction is continued, relaxing with contraction of the diaphragm, which causes considerable tugging and oscillation of the forceps. About four to four and one-half inches of the nerve must be withdrawn in order to interrupt the conductivity of the accessory phrenic nerves, which are present in twenty to twenty-five per cent of individuals. An accessory phrenic nerve from the fifth cervical may be identified when the supraclavicular incision is used. Should the phrenic nerve break in attempts at extraction, an accessory nerve should be sought and sectioned according to the procedure of Goetze. In extracting the nerve, patients may complain of pain low in the side, deep in the chest or in the region of the heart. The heart may become slow, rapid or irregular. Small veins may be torn, which bleed for a moment or two. The wound is closed by a stitch or two in the cervical fascia; another running stitch approximates the platysma muscle, and skin clips close the skin. A small dressing, held by strips of adhesive, completes the operation.

The dangers of phrenic nerve avulsion are hemorrhage or air embolus through a tear in a large vein; mediastinitis from opening an infected area along the course of a very adherent nerve; pericarditis; damage to the sympathetic with ptosis of the eyelid; section of a nerve other than the phrenic.

The purpose of phrenic nerve operation is to secure localized physiological rest by paralyzing the corresponding half of the diaphragm.

The effects of paraylsis of the half of the diaphragm are elimination of the piston-like action of the diaphragm with each respiratory cycle. The diaphragm atrophies and rises in the chest, thereby diminishing the capacity of that half of the thorax one-sixth to one-third. Adhesions at the base; fibrous bands not only at the base but also those extending upward toward the apex of the lung, are relaxed. This favors contraction of cavities. The work of the corresponding lung is diminished. Its circulation of blood and lymph is retarded. By this stasis toxins of lesions within the lung and pleura are more localized. Gaseous interchange within the lung is reduced. The lung is in a state of partial rest. The inactive diaphragm, with stasis of blood and lymph, materially restricts absorption of air or fluids from the pleural space. This is of importance in induced pneumothorax; necessary refills are less frequent. The relaxed and retracted diaphragm modifies intrapleural stress. The induced pneumothorax becomes more selective, hence, more efficient. Greater compression with lower pressurse can be obtained.

The diminished work of the corresponding lung throws a greater amount of work on the contralateral lung. This increased function is a valuable index of the ability of the contralateral lung to assume the burden of respiration. and tests the status of quiescent or suspicious lesions that may be present within the lung. From these observations accurate deductions may be made as to the advisability of performing more formidable operations for surgical collapse.

The atrophied relaxed diaphragm offers little resistance to intra-abdominal pressure. The upward unimpeded force of the abdominal press makes coughing easier and more productive; hence, less frequent. The amount of sputum diminishes and changes in character with the improvement of the lesions.

INDICATIONS

(1) As an adjunct to pneumothorax.

(2) As a test of the status of lesions within, and the respiratory capacity of, the contralateral lung preliminary to thoracoplasty.

(3) Unilateral lower lobe lesions.

(4) Extensive unilateral disease with slightly active or quiescent lesions in the opposite lung.

(5) When adequate pneumothorax cannot be induced.

(6) When thoracoplasty is inadvisable.

(7) In non-tuberculous lower lobe lesions, bronchiectatic or other suppurations not controlled by pneumothorax.

(8) As a preliminary stage to operations for diaphragmatic hernia.

TEN YEARS AGO

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Santa Fe, N. M.

(Read before the Pecos Valley Medical Association, at their annual meeting held at Roswell, N. M., Oct. 12, 1929.)

Just ten years ago last month, the New Mexico State Department of Health was organized and commenced to function. Two months earlier, Surgeon C. E. Waller, of the U. S. Public Health Service, had taken up his duties as Commissioner of Health at the invitation of Governor Larrazolo and the State Board of Health. This had come about as the result of a new law passed by the 1919 legislature. The law, in turn, had resulted from effective public presentation of the subject by interested individuals and groups, notably, the State Medical Society and the State Tuberculosis Association. At the invitation of the latter, the U. S. Public Health Service had previously detailed Surgeon J. W. Kerr to survey our needs and make recommendations.

Some of the salient points in his report, made in 1918, form a background for the present historical sketch.

"As required by law, the State Board of Health consists of seven members, who must be reputable physicians and residents of the state for periods of five years or more. . . . . In the discharge of their duties board members receive $5 per day and necessary expenses."

The powers and duties of this Board were numerous, but reflected chiefly the older views on the transmission of disease. For example, one paragraph of the law reads, "To convince local courts of danger of infectious baggage, clothing, or goods of other kind; it then being the duty of the sheriff or constable to establish guards when they are necessary. The warrant from the court requiring police officers to act may also require the police officers, under the direction of the Board of Health, to rent, impress, or otherwise procure convenient storage places for infected goods."

In all, there are twenty specific items in this list of powers and duties. Yet the Board had no appropriation of any kind. Its only income was that derived from fees collected for issuing medical licenses. Such health supervision as it gave to the State was at the personal expense of its members. That they did anything whatsoever under such discouraging conditions demonstrates the high ethical standards of the profession. It is recorded that on one occasion smallpox in this State became so great an annoyance to some of our neighbors that they complained to the Governor. It seems that the Board actually had a cash balance of $150, at that time, which the Governor directed them to spend in controlling the disease. Today the situation is completely reversed: the State Board of Medical Examiners never has a balance, and the surrounding states usually send us their smallpox.

Through the State Council of Defense, funds were made available for the control of venereal diseases, during the war. This undoubtedly stimulated interest in a better general health program.

County and city health officers had about the same powers that they have now, but chiefly under regulations passed by boards of county commissioners or under city ordinances. Two counties employed public health nurses, supported, in part at least, by Red Cross funds. Commenting on health activities in cities and towns, Dr. Kerr's report notes:

"In most of the cities and towns visited, the public health activities undertaken are decidedly limited, due for the most part to lack of facilities and absence of coordinated effort on the part of the state and local officials. In certain places, excellent work was being done along restricted lines and in one or two, satisfactory records were being kept of limited activities, but in others, little was being accomplished. This was due, in part at least, to lack of general leadership. Furthermore, in a number of places there was evident need for reconsideration of relative values of the different activities and their revision accordingly."

Taking up again the status of State health work, the report continues:

"The communicable diseases are not adequately reported to any local health office visited, nor properly recorded, and the State Board of Health has no records of cases of outbreaks of any kind. While the difficulties of securing notification are recognized, these can be overcome in New Mexico sufficiently to provide useful data. . . . .

"The recording of births and deaths is also most defective. Again it is found that the State Board of Health has no records whatever and the city and county clerks' records are practically worthless for statistical purposes except in one or two cities. . . . .

"As previously stated the State Board of Health is charged with investigations of 'nuisances, sources of filth, and causes of sickness.' It has not been in position to do this by reason of lack of funds. At the time of this survey outbreaks of influenza and typhoid fever were reported to be widely prevalent. . . . .

"As a means to prevent sickness, State laws have been enacted relating to the slaughtering and handling of meats, prevention of pollution of watercourses, disposal of refuse, sale of damaged or unwholesome food or drink, adulteration of drugs, and sale of poisons; but the laws do not state who shall enforce them, and there is no fund provided with which to do so. In consequence, they are not enforced."

Speaking of laboratory facilities, the report points out that, "Practically every state, for instance, now makes release from quarantine on account of diphtheria, dependent on laboratory tests. It is the only safe way, yet New Mexico is without such aid, and no city or town in the state is known to be provided with a municipal laboratory. Next to an experienced full-time state health officer, this is the greatest health need of the state. It should be provided without delay."

The relationship that should exist between state and local health authorities is well summed up by Dr. Kerr:

"In New Mexico, counties and towns generally have health authorities, but without a functioning state health agency they are like a family without a head. **In health matters no county or town is independent of the others or of the state of which it is a unit.** Local health officers should accord-

ingly be able to look to a state health agency for leadership and uniform regulaitons as aids in the enforcement of state laws; and should the local authorities fail, or refuse, to enforce such regulations or to protect otherwise the public health, it should be the duty of the state to do so at local expense."

In 1921, the State Department of Health was merged with the Child Welfare service under a new board, known as the State Board of Public Welfare. The two agencies became the Bureau of Health and the Bureau of Child Welfare, respectively, in the State Department of Public Welfare. Each has its own Director, appointed by the State Board, and each had delegated to it the powers and duties formerly possessed by its parent organization.

Progress made so far in developing a modern public health program for the State, may best be demonstrated by comparing Dr. Kerr's recommendations with what has actually been done to make them effective. His suggestions will be taken up in the order in which his report presents them and briefly commented upon.

1. "That the present State Board of Health and Medical Examiners be designated in law as a State Board of Medical Examiners and its duties relate thereafter to the enforcement of acts to regulate the practice of medicine."

This was done in 1919.

2. "That a State department of health be created to exercise all the powers and perform all the duties in respect to health imposed by law on the State Board of Health and Medical Examiners."

This was done in 1919.

3. "That the department of health consist of a commissioner of health and a public health council."

This was done in 1919, but the "council" became a Board with regulatory powers.

4. "That the commissioner of health be selected solely on merit and appointed by the council of health, with the approval of the governor, at a salary of not less than $3,500 per annum; that he be a physician skilled in sanitary science and experienced in public health administration; that he be prohibited from engaging in any but official business; that he be authorized and charged with the administration of the laws and the regulations issued thereunder by the department, and the preparatioin of regulations for the consideration of the council of health and, with the approval of the council, the appointment and removal of subordinates in the department."

Carried out substantially as outilned, except that appointment of the health officer does not require the governor's approval.

5. "That the council of health consist of the commissioner of health ex-officio and five members, at least three of whom shall be physicians, all to be public-spirited and the five last-mentioned to be appointed by the governor in such manner that the term of office of one of them shall expire each year."

The present State Board of Public Welfare consists of five members appointed by the Governor for terms of six years. Either one or two terms expire each two years. The law does not specify whether physicians be members or not. The State Director of Health is not a member of the Board, but its employe and executive officer, exercising its health function. Authority was granted the Director as suggested. His salary was fixed by law at not over $4,000.

6. "That the council of health be empowered to promulgate regulations, to consider public health plans, appeals and appointments, and to submit annually to the legislative assembly, through the governor, a report of the recommendations as to needed legislation."

This was provided for in the laws of 1919.

7. "That the public health council meet at least once annually and on call of the commissioner or on request of any three members, to consider and advise in respect to health matters, and that its members receive necessary traveling expenses incurred in attending conferences."

The State Board of Public Welfare meets monthly and also at the call of its president or a majority of the members. Traveling expenses are paid.

8. "That the commissioner of health be required by law to attend conferences of state and territorial health officers convened by the Surgeon General of the United States Public Health Service under the act of Congress approved July 1, 1902."

This was not specified in the law, but is allowed when funds permit.

9. "That the regulations, not inconsistent with Federal or State laws, promulgated by the council of health be given the force and effect of law and be made the minimum requirements of localities throughout the State. That the commissioner of health be empowered to enforce said regulations to prevent disease in any localities whose authorities fail or refuse to do so."

All of this became law in 1919.

10. "That a sanitary engineer be appointed by the commissioner with the approval of the council of health at a salary of not less than $2,500 per annum. That he make inspections and laboratory examinations re-

lating to the purity of water and milk supplies, and the disposal of sewage, garbage, and wastes, and otherwise aid in the handling of sanitary engineering matters affecting the prevention of disease in towns and counties of the State."

A traveling sanitary engineer has been on the staff since 1919. Every public water supply and sewage disposal plant has been under his constant supervision. Other sanitary problems also come under his jurisdiction, and he has made such effort as time and funds permit to improve milk handling.

11. "That a bacteriologist be appointed by the commissioner of health, with the approval of the council of public health, at not less than $2,000 per annum, to have immediate charge of the laboratory of hygiene to be recommended later."

This appointment was made in 1920.

12. "That a vital statistician be appointed by the commissioner of health, with the approval of the council of health, at a salary of at least $2,000 per annum, to collect and compile under the direction of the commissioner, reports of sickness, births, and deaths occurring throughout the State."

A Division of Vital Statistics was created in 1919 and began to function in 1922. Limited funds have prevented the appointment of a statistician until about one year ago.

13. "That a public health nurse be appointed by the commissioner of health, with the approval of the council of health, at a salary of $1,200 per annum, to supervise, under the direction of the commissioner, nursing in relation to disease prevention, and child welfare throughout the State."

There has been a well trained public health nurse on the staff since 1920. When federal aid was available, she had two field nurses under her supervision. Since 1918, the number of local nurses has increased from two to fifteen. At least ninety per cent of the mothers in the State are reached with printed advice, if not by personal visit.

14. "That quarters for the State department of health be provided in the State House at Santa Fe."

This has always been the case.

15. "That a diagnostic laboratory be established and maintained by the department of health at the most accessible location to all parts of the State, for the bacteriologic examination of water and milk supplies and sewage disposal, cultures of disease-producing organisms, and other public-health specimens."

Through the courtesy of the State University the laboratory was established in Albuquerque in 1920. It has functioned continuously since. Recently a small research project was begun.

16. "That all chemical analyses of foods and drugs deemed necessary by the department of health in the enforcement of food and drug laws, be made in the chemical laboratory of the State University."

This is done, but on a fee basis.

17. "That the model law for morbidity reports adopted by the state and territorial health authorities in conference with the United States Public Health Service, be modified according to requirements and enacted into law."

This law became effective as a regulation in 1920. The minor diseases are not well reported as yet, but those of major public health significance are.

18. "That the law for the registration of births and deaths to fulfill the requirements of the director of the Census Bureau be adopted and enforced."

The model law for the registration of births and deaths was adopted as a regulation in 1920. These reports have steadily improved in quantity and quality since then.

19. "That a system of reporting communicable diseases, including report cards, be immediately installed under regulation of the department of health.

The system was established in 1920, when the regulation was adopted.

20. "That educational leaflets on public health subjects be published, or otherwise secured, for distribution to people of the State, especially school-teachers."

A stock of over 100 different publications is maintained for distribution. There is also a loan library of books on health and general medicine. Exhibits, lantern slides, strip films and motion picture films are also available

21. "That the State department of health and local health authorities be charge specifically with the enforcement of existing State laws as affecting their jurisdictions."

The statutes provided for this in 1919. Very broad powers were granted both state and local health authorities.

22. "That provision be made whereby two or more counties, or towns and counties, may combine in the employment of a full-time health officer."

By an act of the legislature in 1920, this authority was granted the counties individually, together with the right to levy as much as half a mill for the purpose. Nine counties have adopted the plan of employing full-time county health officers and have operated under it, more or less continuously, since 1921. All but one of them employ one or more public health nurses.

23. "That the appropriation of $22,900 be made by the State for the support of activities of the department of health annually."

An appropriation of $13,000 was made

for each year of the first biennium. Today it is approximately $38,800, or almost exactly three times the original figure.

24. "That an epidemic appropriation of $5,000 be made available for expenditure under the direction of the governor, as required to combat dangerous epidemic diseases."

This amount was actually fixed at $25,000. It is with this fund that recent flood emergencies were met.

Thus we see that Dr. Kerr's twenty-four recommendations were put into practical effect within one to four years after he made his survey and are still in operation. The fact that the plan has worked out satisfactorily almost exactly as he conceived it is a testimonial to his wisdom and vision.

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TECHNIC AND INDICATIONS FOR THE USE OF THE DUODENAL TUBE.

W. L. BROWN, M. D., and C. P. BROWN, M. D.,
El Paso, Texas

(Read before the New Mexico Medical Society, at its Forty-Seventh Annual Meeting at Taos, New Mexico, June 12-14, 1929.)

Among the heritages left to the medical profession by the late Dr. A. J. Ochsner of Chicago, was the use of the stomach tube in postoperative distention and vomiting. Dr. Ochsner was always very enthusiastic about stomach lavage, but the procedure never became popular because the remedy, in the form of the old stomach tube, was almost as bad as the disease. However, he enunciated an important principle and it was left to Levin and others to invent the "modus operandi."

There has been much experimental work done by Draper[1], Whipple, Stone and Bernheim[2], MacCallum and associates[3], Haden and Orr[4], and McCann[5], which shows the duodenum to be the toxic zone in intestinal obstruction, whether adynamic or mechanical in nature. As to the character of the toxins, the experimenters have not all agreed; but as to the location of their production, there is quite uniform agreement—that it is in the duodenum and upper jejunum. Many surgeons have recognized this "segment of toxicity" of Whipple's and have undertaken to meet the issue by doing an entero-enterostomy in anterior gastro-enterostomy and all other operations tending to produce stasis in the duodenum. They have also advocated jejunostomy drainage in intestinal obstruction, resections, peritonitis and other cases in which there is likely to be intestinal stasis, toxemia and gaseous distention. The duodenum and upper jejunum being the important source of the toxins, duodenal tube drainage then suggests itself as being a simple and important therapeutic measure.

We are confirmed in our belief that these toxins, formed in the duodenum and jejunum, are constantly regurgitated into the stomach. The character of the fluid withdrawn from the stomach and the rapidity with which it reforms, would strongly indicate that the great bulk of it was regurgitated; so does also the fact that some of the most profound toxic cases of peritonitis and intestinal obstruction, in which early dissolution was imminent, have been relieved of their vomiting, distention and toxema by stomach drainage, and have lived in comparative comfort for a week. This is probably all that a surgical drainage of the jejunum could have accomplished. In other words, these cases have not died from the early formation of toxins in the "toxic loop," but have finally died of a toxemia produced by the dissolution of the tissues at the site of the pathology[6].

In cases of perforated appendicitis with a greater or less amount of peritonitis, in conjunction with Fowler's position, Murphy's drip, and Ochsner's massive, hot packs, the duodenal tube is the treatment **par excellence**, and it is in this class of cases that it saves the most lives, as they are the most common. We are firmly convinced that it, and it alone, has saved lives in these desperate conditions. In the less frequent cases of mechanical intestinal obstruction, it relieves the toxemia, stops the vomiting, and certainly gives the patient every opportunity to overcome the effects of the obstruction after operation.

Many times, in operations on the stomach and intestines, in order to prevent distention and vomiting, we insert the tube before the patient leaves the operating table. The large quantity of fluid present at operation, in a twelve-hour fasting stomach, is always surprising.

In cases of obstruction and peritonitis, we have been able to withdraw a quart of fluid from the stomach, although the patient was constantly vomiting. In other words, vomiting does not mean that the stomach has been emptied of either fluids or gas. In fact, we have inserted the tube and been able to hear the escaping gas all over the room, although the patient had just been vomiting.

In cases of difficult abdominal hernias, or other hernias, when we wish to guard our suture line from the effects of vomiting, we pass the tube on the table and leave it in place until the period of vomiting is over. If the patient is sufficiently out of the anes-

thetic to swallow, there is usually very little trouble in passing the tube.

We find that we are using the tube more often in all kinds of abdominal operations when there is any undue distention or vomiting. The relief is frequently so marked, and the patient is given so much comfort, that he begs to have the tube returned if he once experiences a few hours drainage.

THE TUBE USED

We use the Levin duodenal tube, Number 16. We think this the most satisfactory size. After several boilings, the smaller tube gets so soft it is difficult to pass; in other words, it can only be passed by the effort of swallowing alone. In addition to this drawback, the openings are very small and are constantly clogging with mucus. If the tube is larger than the Number 16, and must remain for a long period of time, it is more irritating; therefore, the Number 16 is the most desirable.

The first requisite in passing the tube is to have the surgeon, or nurse, believe in its value, and convince the patient of its necessity. Three or four pillows should be placed under the patient's head and shoulders, and the chest draped with a bath towel.

With a cotton applicator, the nostril through which the tube is to be passed, should be swabbed far back with five per cent cocaine solution. The nasal irritation is often the starting point of trouble. If the patient is very nervous, it is wise to spray two or three dashes of five per cent cocaine into the throat; have him swallow the saliva, as suggested by the late Dr. Ochsner.

The tube should be well lubricated, preferably with olive oil or a light coating of vaseline rather than with the water-soluble lubricants. The tube is gently passed through the nostril until it is felt to touch the posterior wall of the pharynx. At this stage, the patient is given a swallow of water through a drinking tube. As the water is swallowed, the tube is gradually slipped down, taking advantage of the peristalsis; from this point on, the patient is allowed to swallow water and the tube is passed with the peristalsis until the second mark on the tube is reached.

When the patient is inclined to gag, stop everything and insist upon he breathing rapidly, for a moment, through his mouth; this is usually successful.

An "asepto" bulb syringe is applied and the stomach contents aspirated. We caution against injecting fluid until stomach contents have been secured, proving that the tube is in the stomach. Often, if the tube appears to be in far enough and no stomach fluid is aspirated, forcibly injecting air helps to straighten out the kinks. If still no stomach contents are secured, give the patient more water to drink and wait four or five minutes. This will give the lower end of the tube time to get well down into the stomach contents.

After this is accomplished, aspirate all the fluid before beginning to wash the stomach. After the stomach is thoroughly irrigated, the tube should be hung off the side of the bed, the lower end being lower than the patient's body. This is one thing we have constantly to fight about with the nurses—that is, to get them to recognize the principle of siphonage.

From now on, the patient may be permitted to drink an abundance of cool water, which will continually flow out through the tube.

There is practically never any excuse for the patient vomiting after the tube is in place; he should have nothing to vomit; if he vomits, the tube is not working. The reasons for this most often are that the end of the tube is not lower than the patient, or the holes are stopped up with mucus, or too much of the tube is in the stomach, forming short kinks. If the patient drinks water and it does not run back through the tube, something is wrong. Of course, it may be in the duodenum.

The mucus may be either sucked out with the syringe, blown out, or washed out by injecting water. Because of this mucus, we are inclined to use soda solutions for lavage at intervals, to facilitate its removal.

At times we see the patient's stomach distended with gas with the tube in place; this means either that the tube is stopped up or that all of the openings in it are submerged in fluid, above which is the gas.

I wish to emphasize that, when the nurse tells you the patient is vomiting with a tube in place, she doesn't know how to take care of the tube.

It may be left any length of time desired. We recently had a serious case of appendicitis peritonitis, in which the tube was left for nine days. The patient recovered.

In stomach operations, such as resections, ulcers, gastro-enterostomy, we pass the tube before the anesthetic is given, washing and aspirating the stomach thoroughly, and leave it in during and after the operation.

WHAT THE TUBE ACCOMPLISHES

1. It relieves conditions due to gas and regurgitated intestinal fluids. It is a vent pipe.
2. It effects interrupted or continuous lavage of the stomach, and, in some cases, of the duodenum.
3. It gives relief from nausea.
4. It makes possible the free drinking of

water and thereby relieves that most distressing symptom, thirst.

5. It permits transgastric feeding.

6. It relieves toxemia.

7. It is a port of entry for all kinds of medication.

8. It improves the feelings of the patients; they often beg for its return after they have once experienced the relief afforded by its use.

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DISCUSSION

DR. W. H. SPITZER, Denver, Colo: We have been using a duodenal tube for an entirely different purpose from that for which Dr. Brown uses it. We do not use the iron tube with the metal tip, because we cannot comfortably pass it through the nostril, but use a tube which has a very fine wire which is like a catheter, closed on the end, size 18, with three openings in the side. This tube we use for the purpose of giving fluids. You do not have to use any cocain if you put plenty of K.Y. on your tube. Pass it to the point where the patient resists by slight gagging. Tell your patients to take deep breaths and if they do this when the crisis comes, it will help very much. The rapid passing of a tube is wrong. You should go slowly and, if so, you will get no vomiting during the time. Pass your tube down to the second or third mark, but do not give anything through the tube at that time. Wait for an hour or two, or at least an hour and a half. by which time the tube will be in the duomenum. If you have any doubts, put some birdshot in the end of the tube. I put 20 or 30 small birdshot in a tube to help it down. In a prostatectomy, clamp your tube across the nostril and let it lie in any position you will. The nurses must cooperate with you, must explain to the patient, as Dr. Brown has said, to get the confidence of your patient. After the tube is down, two or three hours later, furnish water in any quantity. If you wish to furnish alkaline solutions you can. Peptonized milk can be given through these tubes without any evil results. We leave the tubes in for four days and usually the patient begs to have the tube put back. After the second day it is removed, they have no distress. The only difficulty we have is that they complain slightly of a sore throat after the fourth day. This persists for two days after we remove the tube. The fluid is absorbed so rapidly that you can get an excretion of thirty six ounces from the kidneys within twenty-four hours following operation.

I look upon these tubes as a life-saving measure. I try to urge every surgeon to use them instead of giving salt solutions under the skin. The patients do not vomit at all, they have no gas whatever, and, in these old men, I think it is a wonderful aid and the greatest advance in prostatic surgery that has been made in the last ten years. We no longer give salt solution under the skin in our practice. I want to say that, if you general surgeons will use the tube once when you have to amputate a leg, you will become as enthusiastic about it as I am and will not sell that duodenal tube for any amount of money.

DR. W. L. BROWN, El Paso, Texas (closing): I am very glad the question of the metal tip was brought up. We use the Levin tube. If you wish to order this tube, the Southwest Surgical Supply Company of El Paso can furnish it, and you will get the right size. You should have a tube which is the same size all the way through and your tube should be big enough for your syringe. I am very glad to hear Dr. Spitzer praise the tube. We certainly have had wonderful results with its use. As to the other things we use it for: one of the doctors had a case of carbolic acid poisoning—theduodenal tube solved his problem; another, a case of cancer of the stomach in an old lady in no condition for operation—the duodenal tube solved her problem. We were able to fill her up on water and nourishment until we could get her back in good condition for operation. We have used it in a number of pneumonia cases with good success. The hard part is to get started and get the confidence of the patient. A great many of us did not take it up simply because we felt that the ordeal was so severe, we did not have the nerve to do it, but if you get the confidence of the patient, you have not the slightest trouble. A great many of these patients only gag two or three times. You must not try to force the tube down. simply let the patient swallow it. After the technic is once acquired, it is very easy. We rarely ever pass a tube ourselves now, the nurses have all learned the technic and take care of the tubes. There are a dozen little points one has to learn about it before finding just what is necessary, but usually, after it is in use, the patient does not want to give it up. Not long ago, a little boy fell off a telegraph pole and had a traumatic rupture of the intestines. That child would not permit us to take the tube away. As small as he was he said. "Don't do it, it feels too good." The old doctor I spoke of in my paper, would not permit us to take it out for nine days. It is true he needed it for nine days. but not after that, and he did not want us to remove it then.

THE END RESULTS OF SUPRAPUBIC PROSTATECTOMY.

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(Read before the New Mexico Medical Society, at its forty-seventh annual meeting, held at Taos, N.M., June 12 to 14, 1929.)

To evaluate the worth of any given surgical procedure, there must be taken into consideration the amount of suffering brought on by the condition which such procedure is intended to relieve; and further thought must be given to the amount of time during which the subject will be incapacitated by operation. The danger to life must be weighed against the amount of danger involved if such undertaking be not carried out. Lastly, the amount of relief furnished to the individual is of importance, such relief being considered from the standpoint of total ablation of symptoms due to the disease, as well as by the increase of enjoyable years that such operation might or might not produce over what would be the lot of the patient if operation were not performed.

As prostatectomy is very rarely performed on individuals under fifty, rather rarely on individuals between fifty and sixty, and, in at least sixty-five per cent of the cases, is carried out after the age of sixty, a rather nice discrimination is asked for before undertaking such means of relief. For this reason. it behooves us, from time to time, to weigh our results in relief of symptoms, extension of life, immediate and late complications and amount of time lost by the procedure.

Before proceeding further, it would be well to define the term "prostatectomy." As a matter of fact, prostatectomy is a misnomer, and it is to be feared that such error of nomenclature will be hard to correct, for the reason that the term is a handy one and difficult to replace with another involving but one word. For better understanding of what is to be discussed in this concise consideration, it would be well to state that the surgery of the bladder neck, for the relief of urinary retention and its accompanying symptoms and evils, involves the treatment of cancer of the prostate, marked fibrosis of Mercier's bar, stones in the prostate, stones in the seminal vesicles, contracture of the bladder neck due to fibrosis, valves of the posterior urethra, and, lastly, what are classed by some as tumors of the prostate which are not malignant, these tumors being variously reported to be fibroadenomata, myoadenometa or pure adenomata; and for simplicity these latter three will be spoken of as adenomata of the prostate. This conception of the pathology of the enlargement of the prostate is also probably erroneous, according to Tandler and Zuckerkandl[1], after whose teachings we must recognize that the condition is really a true hypertrophy of the subtrigonal and sub-urethral glands, having nothing whatsoever to do with the prostate itself. This latter condition, namely adenomata of the prostate, for by such name we will continue to designate the condition for convenience sake, is the sole condition which will be taken under consideration in the rest of this discourse; and it is only in this way, by dealing with a single condition and not with all the causes of obstruction at the bladder outlet, that one may clarify the end results.

Because it would muddy the waters considerably to consider the end results of various types of operation, and because suprapubic prostatectomy probably comprises ninety per cent of all such surgical attempts, the end results of supra-pubic prostatectomy only are here discussed.

To begin with, the candidates for this operation are, in a large number of cases, men who have to have relief because of acute and complete retention which cannot be permanently relieved by catheterization. A goodly percentage of the remainder are subjects of urinary difficulties which have become so intense that their sleep is markedly disturbed, and, while they may not actually be so ill as to be unable to live with the condition, yet they suffer to such extent that life is not worth living, and for this reason they seek relief. This class is found to have various amounts of residual urine. All of these two types suffer from a cardio-vascular-renal upset to such extent that they are invalided, not only because of their urinary difficulties, but because of all the ills which go with a marked cardio-vascular-renal break plus a low or high or middle grade of uremia, with all its accompanying evils and symptoms, not excluding a rapidly failing mentality.

To come, then, to our subject, the immediate mortality—by which is meant the death rate within six weeks to two months following operation—is, by fair estimate, about eight per cent. The best statistics to be found in the English literature up to and including 1928, are the figures of Mr. Harold Edwards[2], as given in the Lancet, showing a mortality rate of over eight per cent. Sir Cuthbert Wallace[3] gives the mortality rate, by which he means the immediate mortality, as fourteen and one-half per cent. In the hands of five prominent German prostatectomists, their immediate mortality is seven per cent, and it is difficult to find, in either the English or the German literature, what the late mortality—the deaths between

the second and tenth month following operation—amounts to.

Our American statistics, in the hands of trained prostatectomists, vary considerably, and, as usual with statistics, include other conditions than the one discussed; by which I mean that cases of contracture of the bladder neck are often included in such statistics. As these cases occur in younger men, and, therefore, men in better condition, as a rule the mortality is and should be considerably less than in a definition which involves the removal of adenomata only. Furthermore, the complications, sequelae, and hazard of the undertaking, are considerably less; and if such cases be included in statistics of tumor removal, the mortality rate would naturally be lowered.

An attempt, therefore, to include only such cases as defined above, will probably put the mortality rate of supra-pubic prostatectomy performed for adenomata only, at something between five and ten per cent., averaging, as stated above, eight per cent. The statistics given by Verne Hunt[1], in his report of one thousand cases, show a mortality of five and seven-tenths per cent, and his statistics are quite pure, his cases in that report including benign tumor of the prostate only.

It is pretty well agreed that the causes of death are: (1) renal insufficiency, (2) hemorrhage and shock, (3) sepsis, (4) embolism in some form or other, (5) broncho or lobar pneumonia, in the order mentioned; and that renal insufficiency, hemorrhage and shock account for about seventy-five per cent of the deaths.

If, therefore, the above statistics be accepted as fair, we have left about ninety-two cases out of each hundred which make an operative recovery. What is the fate of these ninety-two individuals? Because of error in diagnosis, which error is unavoidable, fully ten per cent of these cases prove afterward to have been carcinomatous; and, while a small percentage of these carcinomata do not recur, yet the majority have return of symptoms and eventually end in death[2]. This leaves eighty-five cases of each hundred to account for, and in their fate we are now interested.

Of this number, fully eighty per cent, or sixty-eight cases of the original hundred, have a complete symptomatic cure, by which is meant that the force and size of the stream are restored to the normal, frequency both diurnal and nocturnal is relieved, and the patient no longer suffers from any urinary difficulties. The low, middle or high grade of uremia and the concomitant cardiovascular-renal conditions are done away with to such extent that the patient has no symptoms emanating therefrom, the mentality is markedly improved and he enjoys life as he did before the early advent of these troubles, and as well as any man of his years is expected to.

The difference between the sixty-eight cases with complete symptomatic cure of both the urinary symptoms and the general conditions resulting from the previous urinary obstruction, or seventeen cases, have various degrees of alleviation of urinary and general symptoms, varying from slight frequency and a small residual urine to considerable trouble, a very small number being not improved at all. And of this number the vast majority need no further attention, as, while they have not an anatomic cure, and perhaps a small amount of residual urine, yet they have no symptoms emanating from this residual urine. A certain number may improve still further, or be completely relieved of their disabilities, if proper diagnosis of the cause of such lack of improvement be made. It will be found that some of these suffer from pyonephrosis ante-dating their operation, and not much can be done to render their urine clear and relieve their frequency except dilatation of the ureters and lavage of the kidney pelvis, which frequently will clear up the urine and put them in the class of complete recovery.

Where a fair-sized post-operative bladder residual exists, if it be due to contracture of the bladder neck, it can frequently be alleviated by trans-urethral treatment, either with the punch or some form of cystoscopic apparatus designed to meet such condition, so that a large number of these cases may be placed in the class of those restored to normal. Again, it is found that tumorous masses have been left, or that new ones have been grown since the time of operation. If the indication be sufficient, re-operation is in order. And thus these cases may recover complete physical and symptomatic health.

To recapitulate, of the total number, approximately sixty-eight per cent have immediate complete post-operative recovery, and it would be fair to estimate that another ten per cent may with ease be added to this estimate, as just mentioned. The remaining eight per cent will have considerable benefit from the operation for a given length of time, and a varying period added to their lives.

Contrast now the fate of these cases, had no operative intervention been undertaken. Intense, ever-increasing suffering from their urinary conditions, as well as their general physical decline, would have been their lot, with gradually increasing incapacity. They would have become a constantly greater burden to their families, and their welcomed death would have ensued within a

period varying from one month to one year from the time they first presented themselves for medical aid. It is true that there are occasional cases which drag out a catheter life for a number of years, but these are rare exceptions which, eventually, come to either prostatectomy or death. Summing up, therefore, it may be said that sixty-eight per cent of these cases are restored to normal life immediately following operation, and that ten per cent more recover completely by some additional treatment; the ba'ance have lost nothing, as they would have gone to the ground by way of a miserable existence anyway.

For the benefit of those who are dissatisfied with these results, it may be said that operative interference is, in the present state of our knowledge, the only method of treatment. Neither x-ray treatment nor the application of radium has yielded any result worth mentioning. On the contrary, most of such attempts have resulted in the formation of fibrous tissue, such fibrosis increasing the urinary difficulties. Furthermore, with the advancing years, and since the end of the last century, the percentage of comp'ete cures has been greatly increased by operation, and the operative mortality markedly lowered.

When it is considered that this disease is as malignant as internal cancer, in that it causes at least as greaat a degree of incapacity and suffering, and ends in death just as frequently as such cancer, this large percentage of excellent results must certainly be regarded as a great medical and surgical triumph. For, if we could show as brilliant, or even anywhere near as brilliant, results in the treatment of internal cancer, such accomplishment would be hailed by the world at large as the greatest of medical triumphs. Considering the advance made in this field during the past quarter of a century, both as regards end results and lowered mortality, the probability is strong that the next few years will still further improve our statistics. Were these cases brought to us, in the present state of our knowledge, at more propitious times, both the mortality rate and the end results might yield still more satisfactory figures.

It is not within the province of this paper to discuss the advantages or disadvantages of two-stage suprapubic prostatectomy over the one-stage operation, or vice versa, and for this reason all mention of the various methods of procedure has been avoided.

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THE GROWING IMPORTANCE OF INDUSTRIAL MEDICINE IN THE WESTERN HEMISPHERE

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(Read before the Pan-American Medical Association at their annual Congress, held in Havana, and republished by permission from the Revista Medica Panamericana of April, 1929.)

Henry Ford, the great motorcar manufacturer of North America, had carved in stone above the Ford laboratories, this inscription: "Mankind passes from the old to the new on a human bridge, formed by those who labor in the three principal arts, agriculture, manufacture and transportation."

Mr. Ford probably gives employment to more men, in his service of production, transportation and marketing than any other one man the world has known. He represents the advance guard of the army of progress of the human race. He has built a bridge, with those who labor, across the river of time, to the new era of the arts of human accomplishments. He represents the necessity for "The Growing Importance of Industrial Medicine in the Western Hemisphere."

The vastness of the two great American continents, their inexhaustible resources and their demand for vast quantities of merchandise, necessitating mass production and quantity distribution, have developed the necessity of industrial medicine.

In the Eastern Hemisphere, the necessity for mass production has hardly yet awakened. The individual production in small provincial towns, with central collection and export distribution, produces no call for industrial medical service. The smal shops, employing a limited number of skilled laborers, are easily taken care of by the local profession. The economic element is provided for by the economic thrift and neighborly offices. In the Western Hemisphere we do things on a different scale and in a different manner. Our manufacturing interests are gathered into industrial communities, where the population is made up almost entirely of industrial workers.

Though a large part of our industrial manufacturing population is made up of laborers but a few generations removed from their provincial surroundings and habits, they very promptly learn to put the great Western Hemisphere word, spend, in front of their Old World word, thrift, and all too soon fall into the habit of making no provision for the rainy day.

Then, we have another class of laborers

in the remote fastnesses of our Cordilleras, Sierra Madres and Andes, who are working in great mines, mills and smelting works, far removed from centers of population where competent medical and surgical attention would be available.

In our great floating cities, out on the open main, we find the necessity of supplying medical and surgical care of a quality superior to that demanded by the occupants of the small caravels, commanded by the immortal Columbus, when they first invaded this great island empire of the west. Then the barber and the cook were allsufficient.

Though we are told it took vast armies of laborers to build the pyramids, construct the Colossus of Rhodes and place the great quantity of material in the Colosseum, yet no age or period of the earth's history employed so great a number of artisans, in the constructive building trades, as the present decade of the twentieth century of the Christian era. The mechanical devices employed, the physical and sociological conditions pertaining, produce a necessity for industrial medical consideration, never before so important.

This question naturally resolves itself into two important elements: namely, the interests of the employee and the interests of the employer. Fortunately, these primal elements have no antagonistic characteristics. Their interests naturally synchronize. In this case, what is good for the goose is likewise good for the gander. The quicker the relief of pain, the quicker you may be able to restore function, and the most proficient prophylactic measures you may be able to employ, naturally reduce the element of compensation in loss of time and production; thereby contributing to the efficiency of the worker.

The efficiency of the modern industrial surgeon depends upon his judgment, skill and education in these matters so vital to his success.

I wish to say that, in the consideration of this subject, I have purposely placed the interests of the sick and injured employee before the interests of the employer, in consideration of our Hypocratic oath. Fortunately, with our modern attitude toward the rights of humanity, we have no mental conflict to embarrass us in this matter.

Practically all the grand divisions of the western hemisphere have passed laws governing the relation of master and man. In the United States of North America, all but three of the forty-eight states, I think, have comprehensive, specific laws covering the medical and surgical care and compensation for the loss of time, for the sick and injured of the working class.

The Republic of Mexico has gone our own republic one better and her federal law is most fair and comprehensive. Her working class and proprietary interests are well taken care of and their relations fairly adjusted.

The growing importance of industrial medicine calls for special requirements and qualifications for the industrial medical man. It has been but a few years since a physician who agreed to do industrial service under a contract, was considered among the renegade class in the profession and regarded as little better than a charlatan. Happily, this attitude has undergone much change, and, from having been regarded, both by employee and employer, as a necessary evil, to be borne with continuous protest, he now is considered, by both classes, as an occupational necessity and an important element in the chain that links the interests of capital and labor.

QUALIFICATIONS

Next t oeducation, I would place humanitarian interests, then judgment and skill. Today, the industrial medical man needs special instruction to enable him to perform his duties intelligently. He must be a versatile individual, with an unusual knowledge of human nature, for his clientele runs the full gamut of the social scale. From hovel to palace, he is required to serve on short notice, and he must find, in the extremes of social conditions, interests uninfluenced by fee consideration and changing surroundings. He must be a physician and surgeon, a specialist in all branches, a friend and "a very present help in time of trouble."

DUTIES

First of all is the relief of suffering and the restoration of function of the sick and injured. The physician should keep well in mind their future welfare, as well as their present relief. He should have a clear knowledge of the laws of the locality in which he is serving, that the interests of his employer, and those of the employee, may not suffer from the mistakes of his ignorance. He should acquire a complete knowledge of the various phases of the industries with which he is associated, so that men may be so rehabilitated that they may occupy suitable positions, where their handicap will be felt the least.

He should be able to shorten the period of convalescence by skill in treatment and replacement in suitable positions during convalescent period. He should have a close association with foremen so that prophylactic measures and convalescent replacements may be carried out with least possible friction. He should make frequent examinations of employees for handicap deficiencies and occupational defects, that such defects may be corrected in time to prevent permanent in-

jury, thereby decreasing operative expense to the working institution.

The food and water supply and sanitary conditions, should be under ever watchful care, for, upon these factors, the efficiency of the labor element and contentment in social relations, greatly depend.

Fifty years ago, a few railroad surgeons constituted the personnel of the industrial surgeons of the western hemisphere; but today a large number are employed, serving large institutions, insurance concerns that cater to small employers, and on railroad and steamship lines.

A few figures, with reference to the magnitude of our industries, are worthy of consideration. We produce 73,000,000 tons of steel ingots to the 64,000,000 for the rest of the world. We produce 600,000,000 tons of coal, while the combined output of Germany and England is less than 300,000,000. We have 300,000 square miles of coal fields, while all Europe possesses but 42,000 square miles.

While England leads us by 19,000,000 spindles, England uses but 3,000,000 bales of cotton in the arts, to our 6,000,000 bales.

The Western Hemisphere produced 972,000,000 barrels of oil last year, principally in the United States, Mexico and Venezuela; while Russia, the only other very large producer, produced 90,000,000 barrels.

While the farmers of Europe were producing 2,000,000,000 bushels of wheat, the United States of North America, alone, produced 3,500,000,000.

Here, where the wild Indian roamed at will little more than a hundred years ago, 9,000,000 wage earners, in 200,000 industries, produce 60,000,000,000 dollars worth of goods, and yet the Western Hemisphere has reached only the adolescent age, so to speak, in international development.

A careful study of this situation will do much toward crystalizing the more or less chaotic state in which this important branch of the medical profession now exists, and will materially assist in carrying forward the industrial interests of our great Western Hemisphere.

BELT FOR SACROILIAC SUBLUXATION

ORVILLE HARRY BROWN, M. D., Ph. D.
Phoenix, Arizona

I herewith report a simple belt—as practical and efficacious as it is simple—for the treatment of sacroiliac subluxation.

It has been my casual observation that physicians commonly treat sacroiliac subluxations by straps of adhesive and by more or less complicated belts. Adhesive gives complete relief in many cases and occasionally without recurrence. Belts, as ordinarily prescribed, may be more or less beneficial. Many of them never seem to give more than partial relief and often they must be worn continuously.

A glance at the mechanical features of the pelvic arch will indicate, I believe, the type of appliance which should be the most beneficial for a subluxation of a sacroiliac joint. The ilia meet in front with blunt ends, tipped with cartilage, coming directly together. Consequently, there is, ordinarily, no slipping of the pubic joint. The sacroiliac joints are angular, roughened, sloping contacts between the sacrum and the ilia. Due to the sloping feature of the joints—bias construction—it is easy to have slight dislocations of an ilium upon the sacrum. The crests of the ilia project outward and upward from the other structures of the pelvic arch, so that a belt applied about the hips is apt to put most of the pressure upon the crests of the ilia. Pressure upon the crests of the ilia widens the spaces between the ilia and the sacrum—the pubic joint being the point upon which the ilia rotates. This effect can be demonstrated very clearly upon the skeleton. Any appliance to support the sacroiliac joints, then, should not be applied to the crest of the ilia nor should it ordinarily be wide enough to impinge upon them. The ideal belt would seem to be one of simple elastic without pads or other projections.

The sacroiliac dislocations may be so slight that they give little or no indication except pain. The x-ray picture may show nothing. Measuring the length of the legs is of no value in most cases, if ever of value. The pain may be so severe as totally to incapacitate the patient or it may be of any intensity down to the mere sensation of strain. The pain, as is well known, may radiate down the sciatic nerve. The one outstanding diagnostic point of value is the tenderness from pressure applied directly over the joint, or joints, in question.

The belt which I advise consists of an elastic web usually three or four inches in width; it can be purchased in any good department store. The web is cut the necessary length to span the hips and the patient slips it on under the clothing and draws it so that it makes gentle, garter-like, pressure upon the ilia, at a point well below their crests. The overlapping of one end is marked upon the other. It is removed and small safety pins are put in so as to hold it at the desired size. The patient then steps into it and draws it up to the proper position. It may be necessary, in certain figures, to apply straps around the legs to hold it in the proper place.

My results with this simple elastic belt, in the treatment of sacroiliac subluxation, have been most satisfactory.

CASE OF CARDIAC PAIN

Diagnostic Discussions and Autopsy Report.

(Case 15131, Case Records of the Massachusetts General Hospital, New Eng. Jour. of Med., Mch. 28, 1929, p. 668.)

Case History

An American factory superintendent fifty years old entered November 21.

Three years before admission he had to stop playing tennis because of dyspnea. For three years he had had "dull palpitating ache" over the heart, dyspnea and pounding of the heart on running upstairs. He had so many "rheumatic" pains at the time that he did not remember whether the pain radiated. Occasionally he had very slight swelling of the ankles. All the symptoms grew slowly worse until seven months before admission. Then he woke one morning with a sharp shooting pain over the precordium darting across the chest to the right side and down both arms. He had to make a desperate effort to catch his breath. He felt an intense constriction over his neck and chest and a sense of impending death. His physician gave him white pills and laid him on the floor with his feet elevated. At this the patient fainted. He was given narcosis, but knew that the same pain and attack returned spasmodically during the next day. For five days he was propped up in a chair. He was able to return to work.

At this point in the history taking the patient had the attack described below and died.

Clinical examination showed a well nourished, slightly cyanotic, orthopneic, verv ill looking man with slightly slow mental reactions. Speech distinct but slow. Pyorrhea. Tonsils enlarged, right more than left. Right posterior pillar occluded most fo the right half of the posterior pharynx, slightly red, good view not obtained. lungs emphysematous, resonant, a few rales in the left base. Tactile fremitus and spoken voice normal. Apex impulse of the heart not seen or felt. Left border of dullness 11.5 centimeters to the left of midsternum, 3.5 centimeters outside the midclavicular line, right border 4 centimeters, supracardiac dullness 6. Apex rate too rapid to count, over 190. Sounds irregular in rate and of tic-tac quality. No murmurs, accentuation or thrills made out. Peripheral pulse very weak and irregular, rate 80 to 100. (Could not be counted accurately. Blood pressure 140/105. Liver two to three centimeters below the costal margin. Slight tenderness. Stomach area very tympanitic. No other organs or masses felt. Slight swelling of the feet which appeared more edematous but pitted only slightly on pressure. Erythematous area over the left instep. Pupils and reflexes normal.

Urine: amount not recorded, cloudy at the single examination, spceific gravity 1.030, a slight trace of albumin, ferric chloride strongly positive, about 20 leukocytes per field. Renal function 40 per cent. Blood: 20,950 to 25,000 leukocytes, 84 per cent polymorphonuclears, hemoglobin 100 per cent, reds 5,200,000, smear normal. Wassermann negative.

Temperatures 98.4° to 100.8°, rectal; pulse 62 to 102, respirations 32 to 22.

The day of death, November 23, Dr. Paul D. White wrote, "The electrocardiogram this morning was very interesting, almost unique—(we have seen only one such record here in thirteen years)—paroxysmal ventricular tachycardia from two ectopic foci (often alternating)." The ventricular rate was 180, the auricular rate 108 (?). P was best seen in Lead III.

During the history taking the patient said that he wanted to stretch his leg, leaned towards the side of the bed as if to do so and said quietly—"Now I am going . . ." Suddenly his whole body stiffened, his head fell back, his eyes took an ominous stare and he gave a spasmodic gasp. On the arrival of the house-officer he was cyanotic and pulseless. No cradiac sounds could be heard. He was apneic for about a minute, then gave a loud gasping inspiratory effort. These gasps sounded as though pulmonary edema was marked. Artificial respiration was continued for about nine minutes after the last inspiration. Then the patient died.

The following are the discussions of this case by Group 2, of the Yavapai County Medical Society and Medical Officers of Fort Whipple, at their meeting of Oct. 1, 1929.

DR. JOHN D. BROOKS

Group II has tonight a case which seems to present a symptom of cardiac condition that is almost pathognomonic. While it has not demonstrable pathology at autopsy, it is a recognized enitty,and we believe it is the cause of our patient's death. However, it is frequently associated with other conditions and we will attempt to show that some of these conditions, at least, in which the pathology may be found, are present.

We have the case of a man fifty years old who has been leading an active life. both physically and in his occupation as foreman of a factory. We believe the hurry and push of modern life has had some influence on his condition. At forty-seven, or three years before admission to hospital. he had to give up tennis which he had played for years, because of dyspepsia with dull palpitating pain over the heart. Sometimes he had so many rheumatic pains that he did not know whether they radiated or not; also slight swelling of the feet. All grew gradually worse until seven months before admission. He woke one morning with sharp shooting pain over the precordium darting to the right side and down both arms. He made a desperate effort to catch his breath. He felt an intense constriction over his neck and chest and a sense of impending death. His physician gave him some white pills and laid him on the floor. At this he fainted. He was given narcosis, but knew he had several succeeding attacks similar to this, that occurred spasmodically. For five days he was propped up in a chair. He was able to return to work.

At this time during the taking of his history. the patient said he wanted to stretch his leg. He leaned over in attempting to do this and then said quietly, "I am going,"—gave a gasp and apparently died; gave two more gasps and died. When the house officer reached him he was pulseless and artificial respiration failed to produce any result.

Clinical examination showed a well nourished, slightly cyanotic, orthopneic, very ill-looking man, with slow mental reaction. He had pyorrhea, his tonsils were enlarged, the pillar occluded most of the right half of the pharynx, slightly red. Lungs emphysematous, resonant. a few rales at left base. Apex impulse of the heart not seen or felt. Left border of dulness 11.5 cm. to the left of midsternum, 3.5 cm. outside the midclavicular line, right border 4 cm., supracardiac dulness 6 cm. Apex rate too rapid to count, over 190. Sounds irregular in rate and of tic-tac quality. No murmurs, accentuations or thrills could be made out. Peripheral pulse weak and irregular, rate 80 - 100. Blood pressure 140/105. Liver two to three cm. below the central margin. Stomach area tympanitic. No other organs or masses felt. Urine cloudy, specific gravity, 1,030, trace of albumin. Renal function 40 per cent. White

cells 20,950 to 25,000, 84 per cent polys, hemoglobin 100, reds 5,200,000. Wassermann negative. Temperature by rectum 98.4 to 100.8; pulse 62 to 102, respirations 32 to 22.

On the day of his death, Dr. Paul D. White wrote, "The electro-cardiogram this morning was very interesting, almost unique—we have seen only one such record here in thirteen years—paroxysmal ventricular tachycardia from two ectopic foci (often alternating)". The ventricular rate was 180, the auricular rate was 108 (?). P was best seen in Lead III.

Dr. Flinn will continue the discussion.

DR. ROBERT S. FLINN.

It is quite apparent, I think, that the presenting symptom in this case is one of cardiac disease. It is true that the patient is suffreing from conditions other than heart dsiease. There is the customary pyorrhea, enlarged tonsils, and albumen and white cells in the urine. Three years prior to admission the patient had to stop playing tennis because of dyspnea on exertion. Now although the sensation of breathlessness on exertion is usually the first evidence that the cardiac reserve is lessened, nevertheless, we must consider severe anemia, wasting disease, advanced pulmonary tuberculosis and rapidly developing obesity as possible causes. In view of subsequent developments however, I think that the dyspnea which developed while playing tennis showed rather plainly that although the spirit may have been willing the myocardium was weak.

Having agreed then, that evidence of cardiac disease was present three years ago, let us consider what may have been the cause. It is stated that he had "rheumatic" pains at that time, but failing to obtain a history of childhood infection, severe attacks of tonsillitis or multiple arthritis, we are not justified in considering this case one of rheumatic heart disease. We must consider syphilis in view of its frequent association with cardiac pain of this sort, and also because of the increased supracardiac dulness. However the Wassermann is reported as being negative.

Seven months prior to admission the patient had a very severe attack of angina. Whether this was due merely to a spasm of the coronaries or to actual thrombosis is of little import.

Angina pectoris or "strangling of the breast," received its name over 160 years ago when on July 21, 1768, Heberden read an account of this disorder before the Royal College of Physicians. That classical description is so excellent and so complete that I shall quote it at some length.

"But there is a disorder of the breast marked with strong and peculiar symptoms, considerable for the kind of danger belonging to it, and not extremely rare, which deserves to be mentioned more at length. The seat of it, and sense of strangling and anxiety with which it is attended, may make it not improperly be called angina pectoris. The pulse is, at least sometimes, not disturbed by this pain as I have had opportunities of observing by feeling the pulse during the paroxysm. Males are more liable to this disease, especially such as have passed the fiftieth year. The pain may be brought on not only by exertion, excitement or meals but also by swallowing, coughing, going to stool or speaking.

"The angina pectoris as far as I have been able to investigate belongs to the class of spasmodic, not of inflammatory complaints, for, in the first place, the access and recess of the fit is sudden. Secondly, there are long periods of perfect health. Thirdly, wine and spirituous liquors and opium afford considerable relief. Fourhtly, it is increased by disturbances of mind. Fifthly, it continues many years without any other injury to health. Its attacks are often after the first sleep which is a circumstance common to many spasmodic disorders. On opening the body of one who died suddenly of the disease a skillful anatomist could discover no fault in the heart, in the valves, in the arteries, or neighboring veins, except some small rudiments of ossification in the aorta."

For some time there has been a certain amount of confusion regarding angina pectoris, some authorities trying to differentiate between the so-called true angina and pseudo-angina. Lately it has been realized that all angina pectoris is true angina pectoris. There are, for example, cases with evidence of organic heart disease and cases without it, cases with sensitive nervous systems and cases without; cases with post mortem evidence of coronary thrombosis and cases without it.

Let us turn for a moment to the physical findings in this case. Here we see a man with marked cardiac decompensation. He is cyanotic, dyspneic, edematous. There are rales at the base, and the liver is enlarged. The heart is enlarged, being 3.5 cm, beyond the left nipple line. The supracardiac dulness is 6 cm. We would not expect to hear murmurs even if present in a heart with an apex rate of 100. The rate is irregular and there is a tic tac quality. The electrocardiograph shows an improvement in the heart muscle conduction. The impulse instead of arising from the sino-auricular node is now raising from two octopic foci located in the wall of the ventricle. The rate is 180. This condition is referred to as paroxysmal ventricular tachycardia and is quite readily produced in experimental animals by obstructing the coronary circulation. There are other features of the electrocardiograph in coronary obstruction such as inversion of the T wave in leads II and I, and slurring of the QRS complex, but no mention is made of these findings in this case.

In this condition it is interesting to speculate on the mode of death in this case. Did the patient die of spasm of the coronaries or of an actual thrombosis? Favoring coronary thrombosis we have (1) the fever of 102; (2) leukocytosis of 25,000; (3) electrocardiographic evidence of coronary occlusion. On the other hand, one of the most charactreistic signs of coronary obstruction is a very low blood pressure. You will remember that in this case the blood pressure was 140. My colleague will further discuss this case.

DR. W. F. McWHIRT

In this case we feel that we may attribute the cause of death, in a way, to modern high-pressure living. This is a factory superintendent fifty years of age who has undoubtedly been going at a high rate of speed and still enjoys, in leisure hours, athletics (tennis). Someone has stated that no man should play tennis after thirty-five. This man evidently had not heard of or did not believe it. Until forty-seven he continued to play tennis. Three years before admission to hospital he was compelled to give up athletic exercises because of palpitation, etc. He was of that type of man who, when he came to stairs, did not take time to walk, but ran.

He had pain over the region of the heart with dyspnea and palpitation, thus showing a gradually degenerating myocardium. Angina pectoris has been discussed by the previous speakers. What is the cause of angina pectoris? Many causes have been given and have changed from time to time. One writer goes so far as to say there are sixty-four different causes of angina pectoris. Let us speak of the pathology of angina pectoris. We

could sum it very briefly and state that there is no pathology. On the post mortem table there may be a case with coronary thrombosis and another without, with calcification of the coronaries or without. One case was reported where the only pathology found was a few adhesions between the heart and the pericardium. In another case a few small tumors were found, one on the pneumogastric nerve and one on the left phrenic nerve. The most reasonable pathology to expect and most often found is aortitis of the beginning portion of the aorta.

What are the symptoms of angina pectoris? There are three main symptoms—pain, fear of imminent dissolution or impending death, and apnea. Pain is an exceedingly interesting point in these cases. It comes on suddenly with a sense of constriction or oppression in the chest and the pain may radiate to the left arm or to both arms. The pain may be entirely in the region of the pharynx with none in the chest; it may be in the angle of the jaw; it may be referred into the ear or occipital region or over the region of the trapezius, or epigastrium, left leg or in the scrotum. There is another type where the pain will be in the posterior aspect of the arm and may radiate down to the little finger. To understand this we must keep in mind the anatomy of the nervous system and its distribution.

Impending death; in the so-called "false" angina the patient does not have this sensation of imminent death, which is present in this case.

Apnea; When the patient is stricken with an attack he takes an inspiration and holds his breath for fear the expiration will increase the pain and the pain is so great he feels he can not stand more, that if the pain becomes greater it will cause immediate death.

In this case under discussion there is a history of infection of tonsils and pyorrhea—which would lead us to believe that perhaps rheumatism played a part. We do not believe angina pectoris is all this man had but we do think it was the immediate cause of death. The enlarged liver, low grade nephritis and slight edema is easily accounted for by engorgement due to a failing circulation.

Our diagnosis in this case is chronic degenerative changes of the myocardium, aortitis and immediate cause of death angina pectoris.

The following discussions of this case have been submitted by the Clinical Club of Phoenix:

DR. S. H. BLOOMHARDT

The salient points of this history—a male, age 50, who three years ago had dyspnea and palpitation on exertion with "dull palpitating ache" over the heart. He had so many rheumatic pains he did not know where they radiated. All symptoms grew slowly worse until seven months ago when he awoke with a sharp shooting pain over the precordium darting across the chest to the right side and down both arms. Slow convalescence but he returned to work. At this point in the history taking, patient said he wanted to stretch his leg, leaned to the side of the bed and died.

High spots of the physical examination were a cyanotic, orthopneic ill looking man, with pyorrhea, enlarged tonsils, emphysematous lungs, enlarged heart, apex rate too rapid to count, sounds irregular, tic tac quality, no murmor. Peripheral pulse very weak and irregular, rate 80 to 100. B.P. 140/105. Liver enlarged, slight swelling of feet. Renal function 40, urine showed albumin but no casts. Leukocktosis with 84 per cent polys. Very unique electrocardiogram, paroxysmal ventricular tachycardia from two ectopic foci, the ventricular rate 180, the auricular rate 108 (?).

Suppose we start the discussion with a brief clinico-pathological classification of precordial pain, an outline I have made from a very good article not long ago by Sigler:

1. Psychic or neurotic pains—toxin or local infection as probable underlying factors.
2. Hysterical pains.
3. Disease of the extracardiac structures.—
   - (a. Thoracic wall
   - (b. Pleurae
   - (c. Lungs
   - (d. Mediastinum
   - (e. Esophagus
4. Cardio-Vascular disease—
   - (a. Pain on exertion
     - (1. Coronary sclerosis
     - (2. Anemias
     - (3. Over-exertion
     - (4. Aorta dsease
     - (5. Hypertrophied hearts of hypertension and valvular disease.
   - (b. Pain—effort not factor
     - (1. Coronary spasm
     - 2. Acute aortitis
     - (3. Coronary occlusion due to embolism or thrombosis.

From this history or as much of a history as was secured before the sudden death of patient, we can eliminate: first, psychic pains; second, hysterical pains; and, I think, third, disease of the extra-cardiac structures. The case is probably one of cardio-vascular disease, the pain did not necessarily come upon exertion, nothing is said in the physical about sclerosis of the vessels and he was not anemic with 100 per cent hgb. and 5,200,000 reds. There was not over exertion as he only leaned to the side of his bed before he died. Aortic disease, there is nothing in the history to make me think of and the Wassermann is negative. He has a hypertrophied heart. but is it one of hypertension and valvular disease? Blood pressure 140/105.

Then let us take up our second group under precordial pain from cardio-valvular disease. Pain, effort not a factor, subdivided into coronary spasm, acute aortitis and coronary occlusion due to embolism or thrombosis. This picture presented has been one of profuse injury to the myocardium for we have a hypertrophied heart which is decompensated and we have a previous attack seven months ago when the pain lasted even under influence of narcosis for several days. In ordinary angina as we think of it, pain is very severe, sudden and usually passes, especially under narcosis. In this case it lasted, severe, for three days. We had a leucocytosis, we have a temperature, all of which point to a coronary occlusion due to embolism or thrombosis. Thrombosis. I believe to be four to five times more frequent than embolism, according to studies by Wolff and White. The usual sources of emboli are either a mural thrombus of the left ventricle or a vegetative endocarditis. Thrombosis never occurs in a healthy vessel, while emboli may occlude normal coronary arteries. In this case, we naturally presume from a history of precordial pain for three years, that the coronary arteries are not normal. I would think of an underlying arteriosclerotic process in the coronary arteries forming the basic lesion upon which this thrombosis formed. A coronary artery may remain sclerosed for years without thrombosis. Boyd believes the mechanism which causes the thrombosis to be an acute inflammatory process, the cause of which is obscure, but it is rather generally believed to be due to some circulating toxic material, derived from an extensive

infection which leads to an outpouring of exudate into an atheromatous plaque. This produces an increase in volume of the plaque which projects and further obliterates the lumen of the vessel or causes complete obstruction. The patient had badly diseased teeth and enlarged tonsils which would account for the infectious material. In this case, which is one of great severity along with coronary thrombosis, we may also have myocardial infarction.

The electrocardiogram, Dr. White wrote, was "unique and interesting.' My knowledge of electrocardiographic work is scant. Dr. Kingsley who is to discuss the case with me has read it up and Dr. Randolph as well can enlighten you. Certainly, the unique part is a case of ventricular fibrillation rather than the better known auricular fibrillation.

Swift and Hitchcock have been doing some interesting work at Rockefeller Institute on precordial pain, McKenzie claims, I believe, the ischemia of the myocardium is the cause of cardiac pain and is not this rather generally accepted? The above workers are of the opinion that pain is due to the involvement of the adventitial coat of the coronary vessels or of the pericardium for, in these structures, sensory nerve endings are found. Thus they challenge McKenzie's theory and have done considerable experimental work, and even by direct irritation of the myocardium have failed to elecit pain, or by ligating a coronary vessel or by injection of materials into the coronary vessel have they been able to elicit pain.

Diagnosis: Cause of immediate death, coronary occlusion due to thrombosis rather than embolism, possible infarcation of the heart; (2) Hypertrophied heart, myocarditis, decompensation; (3) Chronic nephritis, interstititial type.

A. C. KINGSLEY

This case presents a man of fifty, who for about two and one-half years preceding an acute attack of pain, suffered from dyspnea, dull ache over the heart, rheumatic pains, and swelling of the ankles. Up until this time, I believe he was suffering from a myocarditis of toxic origin, probably from the tonsils.

He now suffered an acute attack of pain, awoke with sharp shooting pains over the precordium, darting across the chest and radiating down both arms, lasting for about twenty-four hours.

Symptoms deserving special consideration on admission to the hospital are: enlarged tonsils; absence of apex impulses; increased cardiac dullness; apex rate 190; no murmurs or thrills; weak, irregular and moderately rapid pulse; erythematous area over left instep; leukocyte count 20,000 to 25,000; electrocardiogram showing two ventricular foci.

The acute attack of seven months ago was probably one of coronary thrombosis. There is no evidence of endocardities or pericarditis, aortic aneurism, mediastinal tumor, and the pain was too prolonged for angina-pectoris. There are no foci from which embolus might be dislodged.

In coronary thrombosis, the pain is prolonged usually not less than eight hours. There is marked leukocytosis, also myocarditis and coronary thrombosis are closely related.

The electrocardiogram shows us two foci in the conduction pathways of the ventricle. Whether or not these were both from thrombosis, or simply from myocardial degeneration, or sclerotic patches would be hard to say.

The terminal picture, because of the pulmonary edema, is one of myocardial failure.

Diagnosis: Myocarditis; coronary thrombosis; myocardial failure.

The following are the discussions of this case at the Massachusetts General Hospital (see New Eng. Jour. of Med., Mch. 28, 1929, p. 669.)

DR. RICHARD C. CABOT

We should notice the way this pain came on, when the patient was completely at rest. He woke in the morning with it. I have never known that precise picture in anything except cardiac infarction.

I wonder why the physician thought this postural treatment necessary. I think I would rather be let alone if I were in this condition.

I suppose the clinical examination was made before the history was taken.

"Lungs emphysematous" I suppose means hyperresonant, which is an entirely different thing. With "tactile fremitus and spoken voice normal" it is all the more difficult to make the diagnosis of emphysema, although he may have had it.

Half of the heart beats were not coming through. The blood pressure is rather surprisong, I think, considering the state of the pulse.

Dr. White's findings can easily be connected with the thing we are suspecting, namely cardiac infarction.

There is nothing unusual about the events in the last paragraph. Many patients, whatever they die of, have just that kind of respiratory irregularity. They were watching him carefully and so they put it down, but it does not signify anything.

He died of cardiac infarction, so far as I can see. What else can we think of? We have a high diastolic blood pressure. We have a man who has had dyspnea, who shows no evidence of a valvular lesion, and who is fifty years old. Therefore a long-standing hypertensive heart trouble is the most natural thing to think of, and in view of this symptom complex we should also say coronary disease, narrowing or sclerosis of the coronary arteries.

I do not see that we have any evidence pointing to any other system. He will probably have passive congestion and may have a patch of pericarditis, as so often occurs with cardiac infarction. But we can get leukocytosis without pericarditis in these cases. If he has had one, he has probably had more (older) infarctions. Patients usually have different ages of infarctions in the heart, so I should not be surprised if there were old fibrous patches corresponding to old as well as new infarctions here. They do not usually die in the first attack. They often live months, sometimes years after an attack which one cannot doubt (looking at the old patches in the heart wall at necropsy) was infarction.

Ques.: Does the cyanosis suggest pulmonary embolism?

Ans.: I should not think so.

Ques.: Do you think he might have had a spontaneous rupture of the heart?

Ans.: Yes. But we do not need to think so. There are no known symptoms peculiar to rupture of the heart. Infarction with rupture gives just the same symptoms as infarction without rupture.

Ques.: What are the differential points between angina pectoris and coronary occlusion?

Ans.: Angina is brought on by exertion or emotion. It is a short pain, lasts a minute or two and stops when the cause is removed—the exertion or the emotion. On the other hand infarction is just as apt to come on at rest as when moving, it lasts an hour or more ordinarily, and is not relieved in the way that angina is by keeping quiet or by taking nitroglycerin. It sometimes is not relieved even by morphia. Moreover pulse failure or faint-

ness often come with infarction and rarely with angina.

Ques.: Do you think this first "dull palpitating ache" was the ordinary variety of angina and that he later developed infarction on top of it?

Ans.: That is perfectly possible. We often do have angina earlier in the history of cases of infarction.

Continuing our differential diagnosis of angina and infarction:—a good many cases of infarction of the heart have pain down in the epigastrium, so that there have been a good many operations done with the idea that it was perforation of an ulcer or some other acute abdomnial lesion. Ordinary angina very seldom goes so low as that. I do not know any reason for the difference. With infarction we often get temperature and leukocytosis, whether there is pericarditis, as very often there is, or not. I do not remember seeing either temperature or leukocytosis in ordinary angina pectoris.

Ques.: What were the urinary findings?

Ans.: The striking thing, of course, is that the ferric chloride is strongly positive. I suppose he probably had had very little to eat for some time. It was a starvation reaction. I believe. The rest does not seem to me important.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD

Arteriosclerotic and hypertensvie heart disease with angina.

DR. CABOT'S DIAGNOSIS

Cardiac infarction.
Hypertensive heart disease.
Coronary sclerosis.
Pericarditis?
Chronic passive congestion.

DR. TRACY B. MALLORY
ANATOMIC DIAGNOSIS

1. Primary disease.
Arteriosclerosis.
Coronary sclerosis with thrombosis and occluson.
Infarct of the heart.
2. Secondary or treminal lesions.
Fibrinous pericarditis.
Hypertrophy and dilation of the heart.
Arteriosclerotic nephritis (combined large and small vessel types.)
Chronic passive congestion.
3. Historical landmarks.
Chronic prostatitis (slight).

The heart was considerably hypertrophied. At the apex of the left ventricle were soft focal areas, some red, others white and fibrous, which on section proved to be due to almost complete necrosis of the whole thickness of the ventricular wall. The valves were entirely negative. The coronary arteries showed marked sclerosis. The right was patent, but the left showed a point of marked narrowing about two and a half centimeters from the orifice of the descending branch, where a fresh thrombus was present. There was a generalized sclerosis as well, and a fairly marked arteriosclerotic nephritis.

Ques.: There was no rupture of the ventricle?

Ans.: No. There was a slight degree of pericarditis.

CASE OF HOARSENESS AND PAIN IN RIGHT SHOULDER.

Diagnostic Discussions and Autopsy Report.

(Case 15091, Case Records of the Massachusetts General Hospital, from the New Eng. Jour. of Med., of Feb. 28, 1929, p. 452.)

Case History

An American fifty-five years old entered July 31 complaniing of shortness of breath and hoarseness.

He was in good health for many years until two years before admission. Then he had a feeling of mild lassitude and malaise. He had slight pain back of the right ear. He stopped work and since that time had done only light odd jobs. The December before admission he noticed hoarseness. This had grown worse. In May his breathing began to be wheezy. A diagnosis of asthma was made, which he doubted. He had no cough at any time. His right shoulder began to be a little "rheumatic." For two weeks his sleep had been broken by dyspnea and wheezing; after raising mucus he was able to sleep again. During the day he had a little more sputum than formerly. Ten days before admission he had a bad attack of dyspnea and increased hoarseness. A physician quieted him with hypodermics and gave digitalis for a week.

His family history is not significant.

At twenty-two he had gonorrhea. He had had repeated exposures to venereal disease, but denied symptoms of syphilis. (The reliability of this statemen was questioned.) He had taken no alcohol for seven years. He had gone to sea most of his life, working in factories and ship-building yards in the intervals. He had malaria off and on for ten years beginning when he was twenty-three. In his youth he had several attacks of sore throat. His left arm was amputated below the elbow in a machine. During the past few years he had had some abscessed teeth. He had had a few sharp momentary pains in the region of the heart, scarcely noticeable. He had had some palpitation, principally on emotion. Ten years before admission he weighed 216 pounds, his best weight. He now weighed 160. He had lost 25 pounds in the last two months.

Clinical examination showed a well nourished man with constant hacking, brassy cough, gurgling as though trying to raise some secretion. There was slight obstruction to the breathing. The lips were cyanotic. There were capped teeth, bridge work and moderate pyorrhea. The tonsillar region was somewhat reddened. The trachea was pushed to the left. Beneath the sternoclavicular and palpable in the median part of the supraclavicular fossa and the suprasternal fossa was a pulsating expansile tumor over which the heart sounds were audible. No murmurs. There was a movement of the trachea and of the head with each heart beat. The point of maximum intensity of the heart reclining was 10.5 centimeters from midsternum in the fifth interspace 2 centimeters outside the mid-clavicular line, sitting up 9.5 centimeters; right border 2.5 centimeters. supracardiac dulness 7 centimeters. Aortic second sound muffled, equal to pulmonic second. Throughout the entire precordium was a loud high pitched systolic murmur. Over the aortic area an early short diastolic was transmitted down the left border to the apex. loudest along the left border. Right temporal pulse greater than left and right temporal artery more prominent than left. Right radial pulse of the Corrigan type. Blood pressure, right 160/50, left 198/58. No marked peripheral sclerosis. Chest thickened in the anteroposterior diameter. Flaring costal margins. Expansion very slight. Breathing very coarse throughout the lungs. The inspiratory phase at times sounded like coarse rales, probably because of obstruction to breathing liver edge palpable (two finger-breaths?) below the costal margin. Relaxation of the right external abdominal ring and considerable impulse on coughing. Abduction of the right shoulder limited and painful in extreme degrees of motion.

Urine not remarkable. Before operation blood normal. Hinton and Wassermann strongly positive. Non-protein nitrogen 41 milligrams.

Before operation chart normal except for rapid pulse at admission.

X-ray showed the heart shadow slightly increased in size downward and to the right in the region of the ventricle. There was marked increase in the supracardiac shadow, apparently due to tortuosity and dilatation of the aorta. Above the aorta in the region of the innominate there was a dense shadow with sharply defined margins which extended to the right of the midline for a distance for about 3 centimeters. This shadow was continuous with the shadow of the spine and disappeared in the dense shadows of the neck. The trachea was displaced toward the left. In the oblique view the mass could be separated from the spinal shadow. There was no visible pulsation in the mass. The lung fields were clear. The diaphragm was in the usual position on both sides and moved normally with respiration. The spine showed rather extensive proliferative changes.

A heart consultant advised operation. A surgeon doubted its value but asked time for further consideration. Another heart consultant "agreed with the opinions expressed."

August 17 operation was done. The patient did well after it, though he was quite hoarse. August 22 a second operation was done. Again he did well. He had a good deal of difficulty in breathing and had to sit upright. Potassium iodide seemed to give some relief. August 25 his temperature rose to 104.8°. The potassium iodide was omitted. A throat consultant reported, "The cords move freely although perhaps a trifle sluggishly. The left arytenoid is slightly infiltrated; no edema. Mucosecretion plentiful. Pyriform sinuses well filled with the same. Impression: no laryngeal obstruction." The leukocyte count was 25,600. Two days later the patient was very uncomfortable, with incessant coughing, and sleeping only for short periods in spite of a quarter grain of morphia every three hours. The temperature ranged from 100.1° to 103°. X-ray showed the right lung less radiant than the left and the outline of the diaphragm a little hazy on the axillary margin. There was no appreciable change in the midshadow.

August 31 the pulse rose to 150 and the patient died.

The following are the discussions of this case by Group 3, of the Yavapai County Medical Society and Medical Officers of Fort Whipple, at their meeting of Oct. 15th:

DR. I. D. LOEWY.

We have for consideration a man fifty-five years old who was a sailor and who had considerable venereal exposure. He denied syphilis which the history taker questioned. For about two years he complained of trouble in his chest, malaise and weakness. He was unable to work except at short intervals. Before admission to hospital he became hoarse. In May he became wheezy and was given a diagnosis of asthma, although the patient himself did not believe it. Our attention, of course, is immediately invited to the chest, his heart and great vessels.

Should we stop to select more symptoms they would point to the heart and great vessels. We would think of his brassy cough, cyanosis, trachea pulled to the left, obstruction to breathing, etc. There is a pulsating, expansile tumor or mass at the base of the neck. He also has trouble and pain in the right shoulder,—abducting right shoulder is extremely painful. The blood, however, is normal, non protein nitrogen 41 mgm. 35 being normal, Wassermann strongly positive. We have here a picture denoting some trouble with the heart, some trouble with the great vessels and some obstruction within the chest.

The x-ray and fluoroscopic examination gives the picture of a mass high up in the chest in the region of the base of the neck, and another mass which blends with it, somewhat to the right and posterior, which fuses with the spine, but which in the oblique view can be separated from the spine.

In differentiating, we must consider the three great causes of cardiac disease, rheumatism, syphilis and hypertension. He had several attacks of sore throat in his youth; pain in right shoulder; slight pyorrhea; but there is nothing to indicate that he had a succession of attacks of rheumatism or rheumatic heart disease.

As far as hypertensive heart disease is concerned, there is nothing to indicate this disease is present. The blood pressure does not indicate it and non protein nitrogen is only 41.

Syphilitic heart disease, including the predominating feature, syphilitic aortitis, is undoubtedly present. Syphilis expends itself on the vascular and nervous systems. The positive Wassermann shows this patient has active syphilis and it is now manifesting itself on the cardio-vascular system. There is always a latent period in syphilis in which the patient himself does not realize it is doing any damage, and it ultimately expends itself on the cardio-vascular or nervous systems. In this case it is the cardio-vascular system.

There is, however, considerable differentiating to be done. We must consider the tumor mass shown in the x-ray and fluoroscopic examinations, and to consider whether this is part of this same disease or some other disease. That this man had symptoms of pressure is very obvious.

In cases of syphilitic heart disease where aneurisms develop the aneurism can come on and reach great size without the patient being aware of its presence.

Hodgkins disease can be eliminated by the contour of the mass it having sharp outline, the location of the mass and the fact that the blood count was normal at time of admission. The count later on went up to 25,000 but that was most likely a terminal event.

Considering malignancy in this case, it would be sarcoma. It is hard to conceive of sarcoma in this area that would not show metastases in other places. He had it at least since December and seven months later it had reached only the size described in the report of x-ray of chest.

In order to prove that this aneurism, it is necessary for us to consider the symptoms of aneurism. We can not one hundred per cent rule out another mass, which would be carcoma in this case, but are inclined to believe that malignancy does exist. We must differentiate between the aneurism of syphilis and that due to other causes. Rheumatic heart disease could produce aneurism with atheroma of the blood vessel, giving way of internal lining of the blood vessel and subsequent aneurism. Rheumatic aneurisms are always preceded by heart disease and are situated lower down on the aorta. We can confidently rule out rheumatic heart disease and aneurism of that nature. Syphilitic aneurism is part and process of syphilitic aortitis. The common situation is the ascending portion of the arch of the aorta. One authority reports a series of cases, giving aneurism in sixty-nine cases situated in the ascending portion, eighteen in the arch and eight in the aorta proper. If this aneurism exists, it is in the ascending portion of the aorta because it is pushed upwards, forwards and to the right.

It is felt at the suprasternal notch, the right side in the region of the innominate artery and affects the right shoulder and motion in the right shoulder. X-ray shows that this mass is seen as being separate from the spine, which indicates that it is not pushed backwards. When an aneurismal mass pushes backwards it usually affects the spine and causes necrosis.

We have in addition, what I believe is characteristic of aneurism, the trachea is displaced, both head and trachea jerking with pulsation. We have inequality of pulse, which must have been difficult to determine as he had lost his left arm below the elbow. The inequality is especially noted in the right temporal pulse. Right side blood pressure is lower than left side.

The cause of death of this man is not as easily determined as some of the other features. He was operated on, in fact there were two operations. We do not know what was done, the operation may have been to relieve pressure, taking out certain ribs, wiring may have been tried. The only operation that I know of for aneurism is to wire it and perhaps remove portions of the chest wall. If aneurism ruptures it may rupture into the esophagus, in which event the patient usually vomits blood; this patient does not vomit blood. If it ruptures into the trachea, the patient usually spits blood, which our patient does not. If it ruptures into the mediastinum, there is usually a leakage of blood into tissues, which is not indicated in our case. Occasionally it ruptures into the pleural sac. There is a remote possibility that this happened because the final x-ray shows considerable cloudiness on the right side and density at right base at the diaphragm, but I do not think that actually happened. The cause of death is considered to be a terminal broncho-pneumonia.

Dr. Jones will continue the discussion.

DR. B. L. JONES.

We have determined that there was cardio-vascular disease and, from the information and physical findings, an enlarged aorta. It is also shown in the physical findings that there is a diastolic murmur extending down the left border of the sternum and loudest on the left sternum. Other signs and symptoms of cardiac disaese are present, dyspnea, pain, cyanosis and weakness running over a long period of time, with inability to work. With the positive Wassermann now, and this history of his having had venereal disease when about wtenty years old, we believe he did have syphilis. We believe, from these findings, that he has a syphilitic aortis, and without doubt dilatation of the aorta.

So far this man has syphilitic aortis with aortic regurgitation, but now to complicate the problem, he has a pulsating tumor above the aorta. This is palpable and expansile, extends a little to the right, and the heart sounds come through it, with no murmurs over the mass. The x-ray determined that this mass does not communicate with the vertebrae, that it was sharply defined, but they do not say that it is connected with the great vessels. They do say that the vessels are tortuous, we may find that in an athermatous aorta. We do know that a tumor or mass in the mediastinum can give symptoms of aneurism. In this case we have all the symptoms of an aneurism except that, according to the x-ray, it is non expansile. There is one other thing we would like to have seen done and that is therapeutic test. By that means, if this is an aneurism and non-expansile, frequently by treating it with arsphenamine or iodides, or mercury, in the course of four to six weeks this tumor may become expansile.

From the x-ray point of view, the following must be differentiated: malformation of the skeleton, pleuro-pulmonary adhesions, cancerous masses, syphilitic gumma which usually have their departure from the pulmonary hilum, or outside of the clavicle. but more often towards the base of the lung. There may be interlobar pleurisy with effusion, cysts of the lung, or large dermoid. There may be tumor of the mediastinum, thoracic adenitis, lymphoma, lympho-sarcoma, or large pulmonary artery, or dilatation of the conus arteriosus, or dilatation of the left auricle or superior vena cava, and aneurism.

So, we have as much evidence for aneurism as we have for a tumor of some other nature. With the signs and symptoms such as are given in this case and with a diagnosis of syphilitic aortis with regurgitation, the evidence points to an aneurism,

Our diagnosis is:-

Syphilitic aortitis
Aortic regurgitation
Aneurism of the ascending aorta, and involving the beginning of the innominate artery
Terminal pneumonia

The following discussions of this case were submitted by the Clinical Club of Phoenix:

DR. T. T. CLOHESSY

We will begin our consideration of this case with the findings on clinical examination. The dyspneic, cyanotic, coughing patient is obvious at once and naturally directs our thoughts to the thorax. The most arresting sign is the expansile, pulsating tumor back of the sterno-clavicular joint and in the middle of the supraclavicular fossa, at once suggesting aneurism. The only other I can think of in this region which would resemble this would be a pulsatile vascular thyroid, but this is too far to the right and there are no signs of thyrotoxicosis. Next is this age-old classical sign of aneurism, tugging of the trachea, which, added to the pulsatile tumor, suggests to our mind aneurism of the aortic arch. Then we think of the four outstanding, symptomatic landmarks of aneurism, which are pain, dyspnea, cough and hoarseness, and we find all of them prominently present. We find cyanosis, partly due to obstruction of breathing and partly to the failure of the heart to do its work properly. We find a barrel-shaped, emphysematous chest, due to expiratory obstruction. Examination of the heart reveals both systolic and diastolic murmurs. We find a Corrigan pulse on the right and unequal blood pressure readings, further indications, respectively, of artioc regurgitation and aneurism, There is undoubtedly dilatation of the aortic ring from weakening due to aortitis, with subsequent fibrosis, making the semilunar valves ineffective, even though not themselves diseased, although they are probably injured. Even if I were an expert on percussion, I would now depend on x-ray and fluoroscopy to give me further information as to the extent and nature of the chest pathology. Enlargement of the heart is apparently not great, probably due to the short time which has elapsed since onset of the vascular disease. Tortuosity and dilatation, which at best is a fusiform aneurism of the aorta, is found above the heart. In addition there is a shadow of some growwth or infiltrate in the region of the innominate which displaces the trachea to the left. This is non-pulsatile, but with chest aneurisms there are found periarteritis and mediastinitis, with infiltration, which bind down the artery. the pulsation in the case of syphilis, appearing after treatment is instituted. This shadow could be separated from the spine and is probably an arteritis and periarteritis of innominate.

Going back over the history, we find that because of mild lassitude and malaise two years ago, this man quit work. Maybe it was only mild lassitude; some men are easily discouraged where work is concerned. However, that was probably the time of the incipiency of this condition, or at any rate, syphilis might have been discovered and treatment been effective, whereas now irremediable damage is done and detailed determination of cardiovascular condition is mostly academic.

It is now conceded that most of these thoracic aneurisms are of syphilitic origin, syphilis being essentially a vascular disease. The considerable chest pathology in this man, as revealed by physical examination and x-ray, points to syphilitic infection and the Wassermann corroborates this opinion. What benefit surgical intervention expected to accomplish in this case I cannot figure; perhaps they had very good reasons unrevealed to me. In view of the condition as a whole, even a successful ligation of any special artery would have had little effect. Still, he improved after the first operation, so there must have been some condition present that I do not understand. I also note that the vocal cords were not paralyzed, though it was noted they acted sluggishly. My impression is that the hoarseness in aneurism of the aorta is due to involvement of the recurrent laryngeal nerve, with consequent paralysis of the left vocal cord or of both cords.

A course of iodides and mercury would undoubtedly have relieved this man of many of his symptoms and perhaps prolonged his life.

I believe this man had an aortic arch aneurism, cardiac disease and probably a bound down aneurism of the innominate. Death resulted from pneumonia.

DR. HOWELL RANDOLPH

The salient points in this case are: male, age 55, entered the hospital July 31st, died one month later. The chief complaints were shortness of breath and hoarseness.

Good health all his life, two years before he had noticed weakness and malaise, and since then he had not done hard labor. For six months he had been hoarse and the breathing became wheezy two months ago. Pain behind the right ear was reported two years ago, and rheumatic pains in the right shoulder for the past two months. Extreme dyspnea and hoarseness were present for about ten days before admission. A sailor, had had gonorrhea, denied syphilis. Occasional short transitory cardiac pains for years with some palpitation. Loss of about 25 lbs. in the past two months.

Physical examination showed a constant, hacking, non-productive cough, with slight obstruction to breathing. Trachea pushed to the left, a pulsatory expansile tumor was found beneath the supra-clavicular fossa and in the suprasternal notch. Trachea and head moved with each pulsation. No murmurs. Heart markedly enlarged, with increased supracardiac dullness. A loud, high-pitched, systolic murmur heard over the entire precordium. Right temporal pulse greater than left. Right radial pulse of the collapsing type. Right B.P. 160/50, left 198/58. Liver enlarged. Pain and limitation of abduction of the right shoulder.

The Wassermann reaction was strongly positive. The x-rays show the aorta dilated and dense shadow in the region of the innominate artery, which was extended to the right of the mid-line for about three centimeters. Two operations were performed. There was fever and leucocytosis on the last four or five days of his life, with increased density in the x-ray of the lungs on the right.

The essential pathology in this case is undoubtedly luetic aneurism, probably of the right innominate artery. The symptoms of pressure include those affecting trachea and larynx, with a possible connection with vagus irritation, in the symptom of pain behind the right ear. A complete paralysis of the right vagus would cause paralysis of the adductors of the larynx, with no movement of the right cord on inspiration. Examination showed only sluggish movement of the cords. Here we may have a vagus irritation, possibly, with hoarseness and referred pain to ear region. It seems rather remarkable that the diagnosis of asthma should have been made in May and but two months later the classical symptomatology and physical findings of aneurism be found. Asthmatic rales are common with pressure due to aneurism but there must have been rather rapid progression of the disease to find palpable tumor, significant systolic and diastolic murmurs, etc.

Rather unusual was the finding of heart sounds over the pulsating tumor in the neck. Furthermore the absence of a murmur over the tumor is seen only occasionally, and might be indicative of transmitted pulsation. There is usually a soft blowing sustained murmur over an expansile aneurism mass.

The loud systolic and diastolic murmurs, together with the Corrigan pulse indicate a marked aortic insufficiency, probably secondary to dilatation of the aorta. The aneurism seems to be in the right innominate artery, because of the relatively high position of the tumor, the presence of high pulse pressure on both sides, somewhat less on the side of the tumor. There is some inconsistency apparent in reporting the pulse collapsing on the side of lowest pulse pressure. With an aneurism of the innominate the size this is shown to be by x-ray, we might expect a very much lower pulse pressure on the affected side due to the obstruction to the pulse wave given by an interposed reservoir of blood.

Diagnosis:-

Syphilitic aortitis with dilatation of the aorta, and dilatation of the aortic ring.

Aneurism of the right innominate artery.

Cardiac decompensation.

Terminal lobar pneumonia.

The following discussion of this case was given at the Massachusetts General Hospital (see New Eng. Jour. of Med., Feb. 28, 1929, p. 453):

DR. RICHARD C. CABOT

Notes on the History

1. Suspicions do not necessarily mean anything, but one can not prevent them from arising in one's mind with the combination of things we have in this history. We have a chronic hoarseness in a middle aged man and pain in the shoulder. Both of these often link up with aneurism. Shortness of breath goes with that diagnosis made on cases turning out to be aneurism.

The combination of dyspnea and hoarseness is not common.

Notes on the Physical Examination

2. The use of the term "brassy cough" shows that the interne has already made the diagnosis of aneurism. Of course "brassy cough" does not sound in the least like brass. You may hit brass with any substance you like and it will not sound like "brassy cough." It is a very hard ringing cough without sputum, unproductive, not peculiar to any one condition, but often seen with aneurism or tumors giving pressure on the trachea or bronchi. I do not think the word "brassy" should be

used in a record. It states your diagnosis too early I think, like "rose spots" in suspected typhoid.

3. I do not know what "slight obstruction to the breathing" means in a physical examination;—"obstruction to breathing" is stating the conclusion rather than the evidence.

4. "The trachea was pushed to the left." He must have seen the Adam's apple or perhaps he could see the whole thyroid and see that it was pushed to the left. Presumably he did not use x-ray.

5. "Pulsating tumor." That does not prove aneurism. You can have a pulsating tumor in that region which may be a misplaced artery (especially with cervical rib) which then often gives rise to the false suspicion of aneurism. A soft neoplasm may also pulsate or may be jogged rythmically by a normal artery behind it.

6. The right radial pulse is mentioned. I should like to hear about the other.

7. There is a difference of thirty points in the blood pressure on the two sides; that ought to mean a real difference. If it were ten points it would mean nothing. But a difference of thirty points anybody ought to be able to distinguish from variations due to technique. That large pulse pressure ought to correspond with the jump and kick of the Corrigan pulse that has been mentioned. There is more pulse pressure on the whole on the left.

8. Going back to the description of the pulsating tumor, I do not see that it is perfectly clear which side it is on. The pulse pressure is greater on the left, and the trachea is pushed to the right.

Miss Painter. The record does not give the side, but the x-rays show it.

Dr. Cabot: The x-ray shows on the left an apparently dilated aortic knob; but the striking thing is off to the right, a shadow which is more certainly abnormal than the knob is. Notice the difference (10.8 cm.) and the one by percussion, which was between the supracardiac measurement by X-ray only 7. I am assuming then, that this tumor is on the right side and was the same which they felt as a pulsating mass; naturally then it is the right shoulder that is in trouble.

9. We are looking of course for an examination of the vocal cords to see if he had a paralysis of the left recurrent laryngeal.

10. "No visible pulsation in the mass seen by fluoroscope." That of course would be against aneurism unless it is filled up with thick clot, as it often is. Absence of pulsation does not in any way rule out aneurism.

11. The heart consultant had courage to advise operation. He may have had first rate reasons which we do not know. The question is as to what operation they are going to do. There is no question about the diagnosis of aneurism. They would not be going after a tumor in that region. It was aneurism. Perhaps they are going to try to wire it or to tie something. If they are going to tie something, what will it be? I cannot say what the operation was unless they tried to wire. As you know, there have been successful wiring operations for aneurism.

12. There is no paralysis of the left recurrent laryngeal.

13. Aneurism could not possible cause a leukocytosis of 25,600. Something else must have done it, perhaps the same thing that caused the temperature.

14. In the x-ray there is a very marked difference between the amount of light coming through this right side and the opaque shadows on the other. It looks like a confluent broncho-pneumonia on the right.

Differential Diagnosis

The suspicions which were naturally aroused in the beginning seem to be confirmed by everything that has come out since. I have no question as to the diagnosis. The only things to discuss are the complications and details. He has (a) aneurism of the aorta which is probably caused by syphilitic aortitis, which has affected the aortic valve so that there is (b) aortic regurgitation. That probably is not very great, because the left ventricle does not seem to be very large. Exactly what portion does this aneurism involved? Probbaly the arch and very likely the right innominate. I think it certainly displaced the trachea from the x-ray evidence that has been presented. It must press on some nerve in such a way as to give that pain in the shoulder. Shoulder pain is always a good thing to be suspicious about where there is a possibility of aneurism. I remember a great many cases here and in the Out-Patient Department treated for a period for rheumatism in the shoulder which later turned out to be aneurism.

I have said all I can about the operations. I do not know what they did unless they wired.

Pre-Operative Diagnosis August 17

Aneurism of the innominate artery.

First Operation

Under local novocain the common carotid artery was dissected up and an aluminum band was clamped around it, obliterating the lumen by about three-quarters of an inch of its normal diameter.

Pre-operative Diagnosis August 30

Aneurism of the common innominate artery.

Second Operatoni

Under local novocain the band was removed and the common carotid artery was firmly ligated with two sutures of Number 2 continuous catgut.

Further Discussion

The next event obviously is pneumonia, whether from or merely after the operation you can judge as well as I. This was a case in which one certainly would have a better chance of catching pneumonia than with most operations. On the other hand it is the sort of case in which one would take any chance to prolong life and relieve suffering, even if death might follow failure. As it is life is not worth living.

Diagnosis: Syphilitic aortitis, aneurism of the aorta, aortic regurgitation, presumably some hypertrophy of the heart because of the aortic regurgitation (aneurism itself does not enlarge the heart) pressure on and displacement of the trachea, pneumonia, I suppose broncho-pneumonia of the right lung.

Ques.: Was the carotid artery involved?

Ans.: I think that the aneurism involved the innominate, but it might perfectly well have involved the common carotid.

Ques.: How do you explain the fact that the right temporal pulse was stronger than the left? Could it be pressure on the left carotid by the aneurism, giving a smaller temporal pulse?

Ans.: No, I think that is too far off. I cannot answer your question. There is always the possibility of error in recording. Right and left are often recorded wrong.

Ques.: The pulse pressure is greater on the left, is it not?

Ans.: Yes, it is greater.

Ques.: Would an aneurism on the right decrease the pulse pressure?

Ans.: Yes, if big enough, making a reservoir through which the blood ran less fiercely on that side.

Ques.: Maybe that was normal.

Ans.: It is a pretty big pulse pressure for normal. He has aortic regurgitation, from the big pulse pressure, and also it is cut down somewhat by the aneurism on the right.

Ques.: Is 198 high blood pressure or is it merely the result of regurgitation?

Ans.: Both. I do not see how you can help saying that it is a high blood pressure, but I have no doubt that it is a result of the regurgitation.

Ques.: You do not think it was due to hypertension?

Ans. There is no evidence of that.

Ques.: Could it involve only the innominate artery and not the carotid? That would account for the difference in pulse pressure on two sides.

Ans.: I should think it would produce that difference whether the carotid were involved or not—anything that involves the innominate with or without the carotid would do it.

Ques.: Does this condition usually result in such a loss of weight?

Ans.: Yes; I looked that up a good many years ago and found that aneurism does usually cause loss in weight. I think the reason is the pain and cough, which result in making people lose a great deal of sleep. If you ever look at yourself in the morning after having pain at night, you will see that you look thin. If you weigh yourself you will see that you have lost during the night. Loss of sleep causes loss of weight. Here is a story of chronic loss of sleep. Whether that is the explanation of it or not I do not know. But the fact of emaciation in aneurism is well authenticated. In making the diagnosis between tumor and aneurism it should be brought out that loss of weight does not favor tumor, because aneurism causes just as much loss of weight.

X-ray Interpretation August 1

The findings are probably due to aneurism of the innominate artery with dilatation of the aorta and hypertrophy of the left ventricle. There is also some evidence of arteriosclerosis and hypertrophic arthritis.

X-ray Interpretation August 30

Clinical Diagnosis (From Hospital Record)

Aneurism of innominate artery.
Tertiary syphilis.

Dr. Richard C. Cabot's Diagnosis

Syphilitic aortitis.
Aneurism of the aorta and probably of the right innominate artery.
Aortic regurgitation.
Probably hypertrophy of the heart.
Pressure and displacement of the trachea.
Terminal bronchopneumonia of the right lung.

DR. TRACY B. MALLORY.

Anatomic Diagnosis

1. Primary disease.
   Syphilitic aortitis.
   Aneurism of the innominate artery.
2. Secondary or terminal lesions.
   Hypertrophy of the heart.
   Bronchopneumonia.
   Arteriosclerosis.
   Operation wound—ligation of carotid artery.

Here are the heart and aorta from this case. The heart is hypertrophied. It has never been weighed because we did not wish to separate it from the aorta, but the increased thickness of the left ventricle is obvious. It is not however so elongated as we commonly see with a marked aortic regurgitation. The valves show only a trace of regurgitation. The major portion of the aneurism is external to the aorta, in the innominate artery, which is practically filled with a pretty well organized blood clot. The arch of the aorta is involved and is dilated to about two and one half times its normal diameter. There is typical scarring of luetic aortic and also very marked ordinary arteriosclerosis.

The other findings of interest in the case were bronchopneumonia, a fairly considerable degree of arteriolar sclerosis in the kidneys, suggesting but not proving that he may have had some papillary adenomata in the kidneys, varying from a millimeter to a centimeter in size. They are the commonest tumors in the kidney, and of no significance except perhaps that some renal carcinomas may develop from them.

Dr. Cabot: You would not go so far as to call that nephritis?

Dr. Mallory: No.

Dr. Cabot: It was lucky for us that we did not suspect the urine. They said it was not remarkable. We hate to go so far astray.

A Student: What is the differential diagnosis between aneurism and tumor where there is no pulsation in x-ray?

Dr. Cabot: In the first place in aneurism there is usually some evidence of syphilis, not merely the Wassermann, which is some evidence, but aortic regurgitation, which taken with the Wassermann is pretty good evidence of syphilitic aortitis. (We can have both syphilitic aortitis and tumor, but statistics show that we do not often have both at the same time.) First then there is some difinite evidence of syphilis, then the presence and position of a tumor in the x-ray, the presence or absence of any evidence of tumor anywhere else. I suppose it is perfectly possible to have a mediastinal tumor in the region where this aneurism was, but it is certainly unusual, especially in the absence of any glandular enlargement in that region or anywhere else.

A Student: What about substernal thyroid?

Dr. Cabot: I do not know of any case where it was off to one side as in this case. I have never known so much displacement of the trachea by a substernal thyroid or by any other tumor except where there were a good many other evidences of tumor, such as edema of the arms, cyanosis, dilated veins, enlarged glands and so on.

A Student: Do you often have an aneurism of the carotid without the aorta being involved?

Dr. Mallory: I am sure that is possible. Clinically the tumor in the neck was the presenting feature, rather more so than is brought out in the record; and the operation was directly intended to be one upon an aneurism of the carotid rather than one on the aorta.

A Student: Were there any evidences of emphysema?

Dr. Mallory: No.

A Student: Was the sternum eroded?

Dr. Mallory: Yes, very much eroded.

CASE OF PAROXYSMAL DYSPNEA AND WHEEZING

Diagnostic Discussions and Autopsy Reports.

(Case 15121, Case Records of the Massachusetts General Hospital, from New Eng. Med. Jour. of March 21, 1929, p. 616.)

Case History.

A Scotch machinist fifty-nine years old entered July 10 complaining of asthma.

He had chronic colds and bronchitis in boyhood. At twenty a diagnosis of asthma was made. Since that time he had had the trouble almost constantly except for eighteen months following an operation on an abscess of the larynx. Since he came to Dorchester from Scotland seventeen years before admission his symptoms had been worse. He was worse at night and early in the morning. He felt better when he lived in the higher part of Dorchester, away from the beach. His symptoms were worse in August. Attacks were caused by hay, golden-rod, feathers, codfish, cabbage, potatoes, cheese, ordinary dust and perfumes. Until six months before admission his symptoms had nearly always been shortness of breath and easy exhaustion, wi tha choking sensation and a desire to straighten up during the attacks. Warm weather and talking made the shortness of breath worse. Kidder's asthma pastilles gave relief. He had had hacking cough all the time, worse in the morning, lasting about half an hour. For twenty years he had had some pain in the chest, worse on the left and during attacks. for nine years he had been unable to work because of exhaustion. Eight years before admission he was sent to a sanatorium for tuberculosis, but was sent home at the end of a month with the diagnosis "not tuberculosis." For six years he has been gaining weight. In December, seven months before admission, he came to the Out-Patient Department of this hospital. At that time examination showed wheezing breathing, sallow complexion, cyanotic lips and buccal mucous membranes, soft glandular swelling in the region of the larynx. A large soft movable gland in the left supreclavicular fossa. Sibilant and crepitant rales throughout the chest. Hyperresonance, especially on the left. At the Anaphylactic Clinic dermal tests showed slight reaction to orris powder and dog hair, positive test to Baldinelli and Rowe dust. Other tests were absolutely negative. For the past six months he thought his asthmatic symptoms in general had decreased. Several of his symptoms, however, had increased. He had been more orthopneic. He became very dyspneic after he talked. For two weeks his ankles had been swollen. For a week he had had palpitation. His appetite was poor.

X-ray examination in the Out-Patient Department June 27 showed the diaphragm on both sides irregular in outline and its excursion limited. There was extensive mottled dullness involving the left upper lung field, also some decreased radiability of the right lung field. The examination was unsatisfactory on account of motion.

His father died of shock at seventy years. One brother and one sister had had mild asthma. He thought his mother had a weak heart. His wife had had one miscarriage at three months and lost one child in infancy.

He had enteric fever (typhoid) forty-three years before admission, bronchitis the following year, pneumonia with pleurisy twenty-one years before admission, followed by rheumatic fever. The abscess or cyst over the larynx lasted for several years. It was opened from the outside. His right nostril was partially obstructed. He had had occasional attacks of diarrhea following taking foods to which he was hypersensitive. These attacks were preceded by vomiting or nausea. For six months he had had to take frequent laxatives while taking some medicine for asthma.

Clinical examination showed a somewhat emaciated man in acute respiratory distress. There was cyanosis of the lips, fingers and toes and pigmentation of the buccal mucous membrane. Pulsating vessels in the supraclavicular region. Vessels of the fundi showed arteriosclerotic changes. Over the thyroid was a scar and cystlike structure the size of a walnut in the midline, apparently attached to the thyroid cartilage. There was asthmatic breathing. The lungs showed rhonchi and wheezes throughout; at both bases diminished breath sounds and whispered voice and a few coarse moist rales. Apex impulse of the heart seen and felt in the fourth and fifth spaces. Left border of dullness 9 centimenters to the left of midsternum, 1.5 centimenters outside the midclavicular line. No other enlargement to percussion. Sounds somewhat obscured by noisy respiration. No definite murmurs heard. Protodiastolic gallop rhythm. At times the heart seemed to be fibrillating; at other times it was regular. Questionable pulsus alternans in the wrist following attacks of respiratory distress. Artery walls normal. Blood pressure 120/75. Examination of the abdomen in the partially sitting position was unsatisfactory. There was questionable enlargement of the liver to one centimeter below the costal margin. Varicocele on the left. Slight pitting edema of the ankles. Pupils and reflexes normal.

Amount of urine not recorded, urine normal except for 6 leukocytes per high power field at the single sediment examination. Blood: 11,500 leukocytes, 76 per cent polymorphonuclears, hemoglobin 80 per cent, reds 4,110,000, smear normal except for occasional Turk's irritation cells. Hinton negative. Non-protein nitrogen 33. Icteric index 5. Sputum negative at the single examination. Stool, bile positive.

Temperature 98° by mouth to 100.8°, rectal. Pulse 60 to 118. Respirations 54 to 28.

The morning of July 11 the patient suddenly became very pale and cyanotic, with sweating and disorientation. The heart was rapid; the pulse weak and irregular in force. There was marked dyspnea and restlessness. After adrenalin, caffein and morphia he rallied. but remained in a very critical state and the following morning died.

The following are the discussions of this case by Group 1, of the Yavapai County Medical Society and Medical Officers of Fort Whipple, at their meeting of Oct. 15th:—

DR. GAIL D. ALLEE.

We believe that this case given us for discussion tonight came to his end by a cardiac death. The history states that his father died of shock. That is the term used by the laity to mean a sudden death, a cardiac death, a cerebral hemorrhage or stroke of apoplexy,—conditions which are associated with hypertension. We believe we will be able to show later that this has some significance. The history also states his mother had a weak heart. Inasmuch as our diagnosis is to be heart death, there might be some significance in that, although it could very well mean a weak, subnormal woman with very neurotic disposition and temperament. His brother and a sister had mild asthma, With this sort of family history we are not surprised to find that he was a

weakly child, subject to bronchitis and colds and received a diagnosis of asthma at twenty.

The history further reveals that at sixteen he had typhoid fever, at seventeen an attack of bronchitis, at thirty-eight pneumonia that is accompanied by severe pleurisy and which is followed by rheumatic fever.

A good part of his history is taken up, from the age of twenty until death at fifty-nine, with asthmatic symptoms.

That he really did have bronchial asthma, I think we can have no doubt when we recall the history that he came from Scotland, settled at the sea coast and was better in higher parts of the city than down on the ocean front. It is very characteristic of asthmatics that they are better off in certain localities than in others. He had morning cough and asthmatic spasms, especially at night, which is also characteristic. Dermal test showed him sensitive to various foods, some of the pollens and to dust. Reports of various physical examinations show sibilant and sonorous rales.

At the age of fifty, nine years before death, he is compelled to cease work because of increasing weakness. A year later he goes to a tuberculosis sanatorium where, after a short period of observation, he is given the information that he is not tuberculous. At this time he is not told he has any heart lesion. I rather think if he had, it would have made considerable impression upon him and we would find mention of it in the history.

The history then is silent for a period of five or six years, except to state he gained weight during that time, which was probably due to retirement from active life and his sedentary habits. It does show that, except for asthma, there seemed to be no active disease going on in this man.

Seven months before death he appears at the out-patient department. His symptoms are mixed up a great deal with those of asthma, which he has always had. He states that this asthma has given him trouble all his life except for a period of eighteen months following the opening of an abscess in median line over the larnyx. At the out-patient clinic it is noted that he has a scar in this region and that there is some sort of tumor, very soft and cystic in character. There is also an enlarged gland in the left supraclavicular region. In addition to his usual shortness of breath accompanying his asthma for so many years, he reports that he has a very high degree of orthopnea and that he is very dyspneic after he talks. They found that his lips were cyanotic at this time.

Presumably this condition continues and seven months later he reports at the hospital with practically all of these symptoms, but all in an exaggerated form. He is received into hospital suffering from severe respiratory distress. Cyanosis has increased now until, in addition to his lips, his finger tips and toes are also cyanotic. He has edema of the ankles, the heart is very rapid, undoubtedly fibrillating, and he has questionable pulsus alternans. The cyst or growth over the larynx is noted and described as being about the size of a walnut. There is no mention of the supraclavicular gland that was noted seven months previous. Naturally the question comes up, whether this gland or this cyst which has been mentioned in his history, which has acted queerly off and on for many years and which, when opened, refused to heal and discharged for several years, has now become malignant. It seems to me that this cyst was undoubtedly a primary growth. It seems to me it would have shown more growth in that time if it had become malignant. Even if it did become malignant, there is nothing in the primary lesion to cause off this man's symptoms. It would have to be metastatic growth behind the sternum, creating pressure to cause those throbbing vessels in his neck and the cyanosis. Against the probability of malignancy is the x-ray that was taken about two weeeks before his admission to the hospital. At that time there is absolutely no mention of any shadow behind the sternum and, without a positive x-ray picture showing an abnormal shadow in that region, a diagnosis of malignancy cannot be made. Another thing against it is that this man comes to death with practically a normal blood picture, which would seem impossible if malignancy were the cause of death.

The most likely explanation of his symptoms and signs ending in death is the heart. Every symptom given is that of hypertrophied, dilated, dying heart. The pulsus alterans, irregularity, rapidity, enlargement to percussion, all these things point to a dilated, dying heart. If he had a damaged heart what has caused it? The vast majority of heart diseases are caused by that great trio, syphilis, rheumatism and hypertension. There is no history of syphilis; it is merely hinted at, in that his wife had a miscarriage at three months and one child died in infancy. In addition we have no signs and symptoms of syphilis and his Hinton was negative. which is equivalent to saying that the Wassermann was negative, because Hinton is the term used by the Massachusetts General Hospital to indicate that Hinton's modification of the Wassermann test has been used.

As to rheumatism—we have a history of it at the age of thirty-eight. Rheumatism in childhood almost always results in heart damage. At the age of thirty-eight, however, he might have had rheumatism and might have gotten by without heart complications or sequelae.

Eight years before death he reported for examination and observation at a tuberculosis sanatorium and was not told that there was any trouble with his heart. He lived for twenty-one years after his attack of rheumatism and that is rather long for a rheumatic heart, if it is to be the cause of death. Aman could have a rheumatic lesion of the heart and come to death from some other cause, but it would be unusual for a rheumatic heart to last that long without causing symptoms before. Another thing against rheumatic heart is that there are no murmurs, no thrills or other evidence of valvular disease. Rheumatism invariably distorts the valves. All the symptoms given are those of a dilated, dying heart.

In favor of hypertension is the fact that this man is well within the hypertension age and it is a thing that runs in families. His father was, no doubt, afflicted with hypertension. We believe he had a hypertensive heart with accompanying hypertrophy, dilation and the congestion which eventually leads to death in heart cases.

As to the actual cause of death, it was concluded by our group from our reading, which conclusion has been strengthened by Dr. Cabot's discussion which has just been read here tonight of a case very similar to this, that infarct of the heart was the immediate cause of death.

Our diagnosis is hypertension. hypertrophy and dilatation of the heart, emphysema, congestion of the liver, kidneys and spleen. infarct of the heart, cyst in the region of the larnyx.

Dr. Swetnam will follow and give you our group's explanation of the cyst in the median line on this man's neck, of which there was such frequent mention in his history throughout his life.

DR. C. R. K. SWETNAM.

We have a man sixty years old who comes to the

hospital complaining of asthma, which he has had for forty years. Forty years ago most any wheezing dyspnea was called asthma. We have to consider the different things that might cause this wheezing dyspnea. One is pressure. If it were pressure it would have to be in the upper part of the substernal region. Pressure could be caused in that region by new growth, and by new growth I mean any growth or overgrowth that should not be there. I am thinking of cyst and enlarged glands. It might well have been a substernal thyroid causing pressure, which could last for a great many years. If it were substernal thyroid, it might be cystic or adenomatous. It might be any form of cyst—the form Dr. Allee mentioned and which we have evidence of being present, but probably not substernal in location

This man had either a cyst or abscess. It is spoken of one time as abscess and another time as cyst. in the region of the larynx but external to the larynx. A cyst in that region is quite frequently what is called median cyst. or cyst of the thyroglossal tract, caused by failure of elimination of the thyroglossal cleft. It is a fetal remnant. These cysts are not always present at the time of birth, at least not to noticeable size. They very often come on or grow to noticeable size about the age of puberty or even later in life. When opened, they have a tendency not to heal and to form a fistula until, or unless, all tissue is removed.

Another thing that could cause pressure in this region would be tumor formation, new growth,—malignant new growth,—or enlarged glands, probably tuberculous glands. We can not absolutely rule out tuberculous glands and the malignancy. If it were malignancy, where was its origin? Certainly he has not had it since he was twenty years old, which was forty years ago. If he has malignancy, it could be metastasis. or it could be other growth such as goiter or one of these cysts mentioned, which broke down and became malignant. The only way we can make a diagnosis of malignancy or any other tumor in that region is by x-ray in negative. We are told in that region is by x-ray, and the x-ray is negative. We are told that the x-ray was not satisfactory but we do not feel justified in reading in some "might have been." We can not make a positive diagnosis of malnancy.

As to tuberculous glands in this region,—the x-ray shows mottled dullness in the left. The most probable explanation would be tuberculosis, and it is likely he has some old tuberculosis. One thing eliminates tuberculous glands and other tumor as the cause of asthmatic symptoms for all these years. All tumors in this region have a few symptoms in common, if the tumor is large enough to cause pressure,—cyanosis and edema of the face and upper extremities, exophthalmos and orthopnea. There is some cyanosis in this case but it is just as marked in the feet as in the hands. There is no edema in the face or upper extremities, and no exophthalmos.

One of the common causes of wheezing dyspnea is bronchial asthma. In looking up bronchial asthma, I found what I believe to be a very comprehensive and up-to-date definition: "An anaphylactic manifestation characterized by recurrent attacks of paroxysmal dyspnea, due to spasm of the bronchioles, developing as a result of exposure to a foreign protein to which the individual is sensitized." This foreign protein may be pollen, food, dust or a bacterial protein from a focus of infection. That form of protein we think of more frequently, but again the history is negative. The patient that one nostril is obstructed; examination does not show anything in the nose or throat. Pus in nose, throat or tonsils is not mentioned. We do know that in the anaphylactic clinic he responded to some of the pollen and to dust, so that is the most likely cause of bronchial asthma in this case.

Another thing which could cause such symptoms as wheezing dyspnea, and which must be differentiated from asthma, is pulmonary edema. He probably has some symptoms of pulmonary edema, but that is a terminal condition and has not existed for forty years. We believe that the symptoms he has had most of these years have been caused by true bronchial asthma, probably due to some pollen or food with which he has come in contact.

Dr. Malone will continue the discussion from the cardiac standpoint.

DR. J. T. MALONE

This patient has a definite history which is very suggestive of allergy. We are also told that he was sensitive to the various inhalation proteins. We do not question the diagnosis of bronchial asthma of an allergic character probably a combined epidermal and pollen affair. Contrary to your probable expectations, I am not going to tell you that this patient died of anaphylactic shock, but I am not sure that if this history were read before a group of allergists that their suspicions would be aroused to the extent of giving serious consideration to this possibility. The history states that his father died of shock. We are rather inclined to interpret this statement as indicating a sudden death. However, there is one possibility in the consideration of our diagnosis of bronchial asthma with usual long standing emphysema which must be considered as a possible factor in the sudden fatal termination of this case and that is a spontaneous pneumothorax resulting from a rupture of an emphysematous bleb. While this condition is not a frequent occurrence, nevertheless it does occur and merits consideration as an etiological factor. We have had several such cases in this hospital verified by autopsy.

However, we believe the evidence is strongly in favor of a failing myocardium, as a result of hypertensive cardiac disease. We base this deduction on the history which indicated that two cardinal symptoms of this condition evidently were present, or at least a suggestion that these two symptoms existed. I refer to the statement in the physical examination of pulsus alternans and gallop rhythm with a suspicion of fibrillation. We have a man of middle age who has a suggestive family history of hypertension. We know that there does exist a familiar tendency to this condition. The blood pressure would perhaps contradict this hypothesis. However, we believe that the blood pressure recorded would indicate a failing myocardium and that there is a hypertensive cardiac condition present, and we expect an enlarged heart. There is a history of passive congestion which would coincide with our picture. Regarding the suggestion of fibrillation, as stated in the history; we know that a large percentage of fibrillators belong to this hypertensive class. In fact some authorities consider fibrillation occurring in these hypertensive cases is second to the mitral stenosis group.

The question arises, was this patient fibrillating, and did death result from a thrombus due to auricular stasis? was there a cardiac infarct primarily or have we any basis to conclude that a pulmonary or cerebral embolus existed? We are told that the man was disorientated. There is no history of hemiplegia. We are quite satisfied that he was fibrillating and suspect a cardiac infarct,—most probably coronary occlusion. A recent statistical survey has demonstrated that a very common cause of sudden death is coronary occlusion. There is, however, a strong possibility that the right auricular appendage will show blood clots resulting from the auricular stasis.

Our diagnosis is bronchial ashtma (allergic) with emphysema, cardiac infarct (coronary occlusion).

The following discussions of this case are submitted by the Clinical Club of Phoenix:

DR. R. J. STROUD.

A man of 59 with a history of asthma in early childhood. The chronic colds and bronchitis were the forerunners of the diagnosis of asthma made at twenty years of age. With this condition came emphysema which is the forerunner of all of his later troubles. He was sensitive actually to many foods, with periods of remission quite common in food asthma. His symptoms were worse at night and in the morning, quite a common type of asthma. Coupled with this was a hacking cough which lasted about half an hour. this was probably due to his chronic bronchitis and is a common sympton.

The chest pain and cough sent him to a sanitarium where he was pronounced free from tuberculosis. The question of whether asthma predisposes to tuberculosis is one still disputed. They occur together in a good many cases. No sputum examination is mentioned. The x-ray examination shows mottling which could be attributed to tuberculosis. If this were true and in small amount there would not be any particular change from the rest of the picture which is essentially that of an asthma of the bronchial type with food sensitiveness, but with no actual skin test to check the food. This also is quite a common thing, for when the tests are made often the starvation or one food test has to be done to see how actually the body responds to individual proteins. There is also the factor of food changes due to faulty digestion which change the actual proteid or its action when improperly taken care of in the bowel.

Then there is the fact of the opening of some sort of growth or abscess on the trachea which, on being opened, gave him some apparent relief for 18 months, which brings us to the fact of "trigger" control of asthma. This abscess or whatever it is could be a branchial cleft not closed properly and when it pressed or filled and riritated the larynx or bronchial tract below, it is possible that it set the trigger going just as it is claimed that a special trigger area is present in a certain part of the nasal cavity. However, this may have been one of those coincidences, unless it was a true abscess which would mean that he was bacterial sensitive also, another factor which is present in asthma, and means that a sensitive individual may take on any senstitiveness. We know that there are times when an asthmatic is free from attacks and which cannot be yet explained scientifically: It just happens.

His further history shows him to be not of the essential kidney failure type, nor is it of the arteriosclerotic type, the only blood pressure mentioned was rather low. This may have been taken at a time when he was having the final terminal failure of the heart which killed him.

Paroxysmal dyspnea in an asthmatic is the commonest symptom, and there the effort of expulsion makes first emphysema, later the diaphragm is flattened, the chest wall expands and the lungs lose their resilience. The heart works at all times against this pressure, and soon loses in the race, altho it takes years for it to give way. This man showed signs of irregular flattening of the diaphragm by x-ray, certainly enough to put constant work upon the heart. The heart was early in what is called incompensation. It will sustain the load only without work. When a little walking or light work is done the man gets short of breath. This agrees with the history of this man who. while having less asthma, found all of the other symptoms increasing, especially the past six months before being seen. This meant a gradual lessening of the heart's ability to keep him going. This lessening of asthma and incompetent heart is one of the commonest symptoms of the disease. After the heart has begun failing a vicious circle begins which means that there is added to a sensitization asthma an added dyspnea, erroneously called heart asthma. From here the step was to heart decompensation as noted by the passive congestion of the liver and the pitting ankles and rales at the base. Myocardium was unable to stand the strain, pulsus alternans set in, which is a sign of beginning of loss of heart control, some auricular fibrillation was present and he went on quickly to the death of long continued asthmatics, the myocardial heart.

I think the rheumatism mentioned may have been a factor, as well as the pneumonia, but neither of these are necessary for the picture of heart failure as here given.

Diagnosis: Myocarditis; emphysema; terminal hyostatic pneumonia; passive congestion of liver; arteriosclerosis.

DR. FRED G. HOLMES

The history emphasizes throughout the wheezing and difficulty in respiration sometimes better and sometimes worse but occurring throughout practically his whole life. There is an asthmatic bronchitis. Coughing especially in the morning with pain in the chest is suggestive of pulmonary tuberculosis. If the history is correct it was thought that he might have tuberculosis eight years before death but after a month's observation was discharged as non-tuberculous. Of course a mistake might have been made at that time or tuberculosis might have developed since then as the x-ray findings would indicate a tuberculosis. The plates were unsatisfactory or at least the readings were not enlightening. Bronchiectasis is a most probable diagnosis. A man who has coughed and expectorated practically all his life; and has led a fairly active life and worked for fifty years probably has a bronchiectasis. The fact that he was found non-tuberculous by sanatorium physicians after forty years of coughing would certainly suggest a bronchiectasis. We would like very much to know the quantity and character of the sputum. Whatever the type of lung involvement, it was not the immediate cause of death even though it undoubtedly contributed to the downfall of the heart. Rheumatic fever twenty-one years before death probably caused an endocarditis. The heart in this condition, poorly nourished by the blood due to the lung condition, and further damaged by the arteriosclerosis gradually decompensated and he died with congestive heart failure.

He may have had a terminal broncho-pneumonia or pericarditis as evidenced by temperature, etc.

The cyst on the neck was likely one of the thyroglossal duct.

Diagnosis:

Asthma or asthmatic bronchitis.
Bronchiectasis.
Hypertrophied and dilated heart.
Endocarditis and perhaps pericarditis.
Passive congestion.
Perhaps pulmonary tuberculosis.
Perhaps broncho-pneumonia.

The following discussions of this case were given at the Massachusetts General Hospital (see New Eng. Med. Jour., Mch. 21, 1929, p. 617).

DR. RICHARD C. CABOT

I think when a history of this kind has gone on as long as this has it is generally right that a diagnosis of asthma should be made. If it had begun a few weeks ago or a few months ago the diagnosis might be a great variety of things, for instance aneurysm and tuberculosis, which I have seen. But there are so few diseases that can go on all this time with nothing else than "asthma" to show for it, that I think we are pretty safe in saying that he did have asthma.

We are not told definitely so far, but I assume that he had recurrent paroxysmal attacks, not constant wheezing or constant dyspnea.

Obviously during these last two weeks before admission he was having a definite cardiac breakdown.

This x-ray plate does not look very good to me. It seems as if there had been motion. Certainly we can see more shadow, especially at the left top, than we ought.

Previous to the physical examination what have we? We have a history suggestive of asthma with a final breakdown of the heart. The x-ray report suggests something more. On the whole it is more suggestive of tuberculosis than anything else I know. Those are the only two things clearly in my mind at the beginning of the physical examination.

I presume that there was no albumin in the urine and that the blood was good.

The presence of Turk's irritation cells does not mean anything other than slight leukocytosis.

I do not know why they made that bile test on the stool.

DIFFERENTIAL DIAGNOSIS

What have we in the way of positive facts? The x-ray, which I wish we had an expert to interpret more than I am able to do, and some facts upon the heart, which on the whole are I think the most important. It is unfortunate that they did not run down the question of *pulsus alternans*. You can almost never tell that at the wrist unless it is an extreme case. You can almost always tell it by taking the blood pressure and watching to see whether as you lower the pressure double the number of beats suddenly come through. That is much more delicate than our power to feel it in the pulse. That point could have been decided one way or the other. But even if they only suspected pulsus alternans it probably was there because that is about as much as you can ever do with your finger. Gallop rhythm is also of very serious prognostic significance, that with the slight cardiac enlargement, which I should not have been sure of at all from the plate, seems to be about all that we have.

What can we say on one negative sputum examination? That is not enough to rule out tuberculosis. On the other hand he has not had the constitutional manifestations of active tuberculosis, so far as I can see from this record. I suppose these x-ray shadows are of scars on the lungs, scars of past, not present, trouble, and I believe that Dr. Mallory will say healed or quiescent rather than active lesions. It is perfectly possible that they may not have been tuberculosis at all. Anyway I do not believe that he died of tuberculosis or that it contributed in any way to his death. He died of a failing heart. Why did it fail? From the strain of working against the lung conditions of asthma, as the heart often does. If you have asthma for years and years it is nothing but a great bother; then gradually the elasticity of the lung gets less and less, the work of respiration is harder, the work of the heart is greater, and finally the heart gives out. It is perfectly possible that the giving out of the heart is independent, not connected in any way with his asthma; but we have nothing else to say as to its etiology from the facts in this record.

What should we expect to find in the heart? Slight enlargement; no valve lesions. It is perfectly possible that there is myocardial change, but there is no way of identifying it without an electrocardiogram.

In the lungs I suppose we should expect to find something at the right top. That something is more likely to be healed or quiescent tuberculosis than anything else. Emphysema may also have developed. The physical signs of emphysema are very hard to be sure of. I do not know enough to say from the facts given us that he has it or has not. It is the sort of case that could perfectly well develop emphysema as a result of long-standing asthma. He should have chronic passive congestion. There is no evidence against the kidneys or against any other organ.

What is this cyst in the neck? I do not see how to connect it with his death or illness. I think it is probably a local afair that has no importance. Exactly what it is I do not know. There was a gland in his neck, I suppose separate from this cyst, although it was not mentioned after the first examination. In the absence of any other enlarged glands and with nothing wrong in the blood I do not see why we should pay any attention to it. Could it be tuberculous? Certainly, although it has not the characteristics of that. There is no evidence of glandular enlargement in the mediastinum. Is there anything that might be lymphoblastoma and bring about the trouble through pressure? Has he any such pressure? I do not see that we have any evidence of it. The gland in the neck is not enough.

The best reconstruction of this case then seems to be that he had asthma all his life and very probably tuberculosis, both processes independent; that he got over his tuberculosis but continued to have asthma; and that his heart finally gave out, with weakening of the muscle but without valve lesion.

X-RAY INTERPRETATION

The findings suggest tuberculosis.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Asthma.
Cardiac decompensation.
Arteriosclerotic heart disease.
Pulmonary tuberculosis.

DR. RICHARD C. CABOT'S DIAGNOSIS

Asthma.
Probably healed tuberculosis of the lungs.
Hypertrophy of the heart, slight.
Probably myocardial weakening.
Chronic passive congestion.

DR. TRACY B. MALLORY

ANATOMIC DIAGNOSES

1. Primary disease.
   Tuberculosis of the lungs with cavity formation.
2. Secondary or terminal lesions.
   Arteriosclerosis of the pulmonary arteries.
   Arteirosclerosis, generalized.
   Hypertrophy of the right heart.
   Chronic passive congestion.
   Central necrosis of the liver.

I believe this patient did have asthma, although the anatomic evidences of that are always slight, and we have nothing that can really prove it in this case. He did have a very extensive tuberculosis, including one cavity 8 centimeters in diameter in the left upper lobe. There was an old healed tuberculous scar at the right apex which was considerable in size, but

there was no evidence of any great recent activity in any of the lesions.

Dr. Cabot: Even on the left?

Dr. Mallory: Even on the left, although it was a very extensive process. The entire left lung was very much smaller than the right because of the scarring, and the entire mediastinum and its contents were very much pushed over. The right lung showed a marked compensatory emphysema.

The heart was not greatly hypertrophied, weighing only 350 grams, but the right ventricle showed relatively great hypertrophy, a cross section of its musculature measuring 8 millimeters, between two and three times its normal size.

The interesting histologic finding was very marked arteriosclerosis of the pulmonary arteries. He had a moderate degree of arteriosclerosis elsewhere, but the process in the pulmonary arteries was out of proportion to that found elsewhere. I think that that possibly bears some direct relationship to his asthma, possibly also to the tuberculous scarring, since the sclerosis of the vessels was most evident in some of the scar areas. Marked arteriosclerosis can occur in any organ or group of organs, where only minimal changes can be demonstrated elsewhere. That is probably true in the kidneys, heart and brain. In individual cases arteriosclerosis will be marked in any one of those three areas and relatively slight elsewhere in the body. It can occasionally be extremely marked in the pulmonary arteries only. I should say however that that is by all means the least common focus for arteriosclerosis. In the majority of cases the pulmonary arteries entirely escape.

Dr. Cabot: Are we looking any more carefully in the pulmonary arteries than we used to?

Dr. Mallory: Yes, I think we are. In spite of that we do not find many cases.

Dr. Cabot: Will you say something more about the relation between the thoracic lesions and the neck lesions? Should you like to say which is cart and which is horse?

Dr. Mallory: No. The neck was not dissected. I cannot tell about that. It is very possible that the neck lesion was tuberculous. With such an extensive cavity as he had he might easily have had a laryngeal process at the same time.

Dr. Cabot: Were there any tuberculous glands in the chest?

Dr. Mallory: Very small ones only.

A Student: Was there any emphysema in the opposite lung?

Dr. Mallory: There was marked emphysema on the right side, that is, the side opposite the cavity. It was however probably largely compensatory rather than a structural process.

A Student: What was the real cause of death?

Dr. Mallory: Failure of the right heart, without any question.

A Student: Was the x-ray report tuberculosis?

Miss Painter: The report was, "The findings suggest tuberculosis."

Dr. Cabot: What about that cavity,—was it pretty well walled off?

Dr. Mallory: Yes. It had a very dense fibrous wall all around it. It had the usual large arterial bridges running across it, and was typical of a non-progressive tuberculous cavity.

Dr. Cabot: On the whole I do not see that we have to take back anything in particular that we said. I do not believe that any one yet knows how to make a diagnosis of pulmonary arteriosclerosis. We have had two cases this year. It is striking to me because I have heard so little of it before in the twenty years that I have held these exercises.

Dr. Mallory: The x-ray man can sometimes make the diagnosis if he finds marked enlargement of the pulmonary artery without enlargement of the left auricle. Of course a bulge in the area of the pulmonary artery with auricular enlargement is probably mitral disease. If the pulmonary artery is very big without the auricular enlargement and without evidence of congenital heart they have made the diagnosis of pulmonary arteriosclerosis.

MINUTES OF THE FIFTEENTH ANNUAL MEETING OF THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

Phoenix, Arizona, November 7 to 9, 1929.

The fifteenth annual meeting of the Association was held in Phoenix, Nov. 7, 8, and 9,1929, with headquarters at the Hotel Westward Ho, and scientific sessions in the Woman's Club auditorium.

By decision of the program committee, the invited guests were limited to three, the remainder of the program of papers being given by the members of the Association and the clinics by the entertaining society.

The papers by invited guests were the following:

"Human Intestinal Protozoa," with moving pictures, by Dr. John V. Barrow, of Los Angeles.

"Treatment of Heart Disease," by Dr. William Dock, of San Francisco.

"Treatment of Bronchiectasis," by Dr. Leo Eloesser, of San Francisco.

The meeting opened Thursday morning with surgical clinics at the two general hospitals; the following clinics were held:

At St. Joseph's Hospital:

Dr. E. Payne Palmer. Operation for:

(1). Large ovarian cyst under nitrous oxide and novocain.

(2). Large uterine fibromyomata under spinal anesthesia.

(3). Large postoperative ventral hernia under sodium amytol and novocain.

Dr. Harley Yandell: Naso-pharyngeal fibroma under cocain anesthesia.

The following surgical clinics were held at the Good Samaritan Hospital.

Dr. George Goodrich:

(1). Breast amputation, general anesthesia.

(2). Removal of wire from clavicle.

Dr. E. C. Bakes: Repair of tracheotomy fissure.

Dr. W. A. Schwartz: Cataract operation.

The following medical clinics were held at the Good Samaritan Hospital.

Dr. E. L. Hicks: Demonstration of a case with carcinoma of the lung.

Dr. Victor Randolph: Bronchoscopy.

The following medical clinics were held at the Woman's Club auditorium:

Dr. Fred Holmes: Bilateral pneumothorax.

Drs. Howell Randolph and Fred Holmes: Bronchiectasis.

Dr. Louis Dysart: Lung abscess.

Dr. George Shields: Pulmonary tuberculosis with syphilis and hemiplegia.

Dr. J. M. Pearson: Congenital heart.

An interestign feature of the meeting was the holding of "clinical luncheons" at noon of the three days, this idea being taken from the El Paso meeting of two years ago. At the luncheon on Thurs-

day, Dr. Barrow of Los Angeles, was the speaker, giving a very interesting talk in preparation for his address of the afternoon.

At the afternoon session, called to order at 1:50 p. m., by president Dr. P. G. Cornish, Jr., of Albuquerque, the Association was welcomed by Dr. H. T. Bailey, president of the Maricopa County Medical Society.

The first paper was by Dr. F. D. Garrett of El Paso, on "Medical and Surgical Treatment of Peptic ulcer." Dr. Garrett outlined the basis for medical management and the indications for surgical treatment when medical regime failed, showing charts and x-ray films to illustrate the points of the paper.

Dr. R. L. Ramey, of El Paso, read paper on "The Surgical Aspects of Gastric Ulcer, with Reports of Some Unusual Cases." He agreed that medical treatment should first be tried, and his paper dealt wtih those cases in which medical regime failed. He stated that symptoms could not be relied on to indicate the degree of pathology present. He reported several cases, with x-ray films illustrating.

Dr. J. W. Hannett, of Albuquerque, read paper on "Perforated Duodenal Ulcer." He gave case histories of ten cases reported upon by him for this lesion; several of these had occurred suddenly, without previous symptoms of ulcer. There were six deaths in this series.

Discussion of this group of papers was opened by Dr. F. J. Milloy of Phoen.ix. Dr. E. P. Palmer, of Phoenix, followed, with closing discussions by Drs. Garrett, Ramey and Hannett.

Dr. John V. Barrow of Los Angeles, now presented his address on "Human Intestinal Protoza," with moving picture demonstrations and remarks on their clinical aspects and treatment. This moving picture is a marvelous piece of photography just recently completed, and illustrated his remarks in a veyr graphic manner.

Dr. Leslie Smith of El Paso, read a paper on "Ringworm of the Hands and Feet." He discussed the recurrences of this trouble and the causes therefor, with suggestions for remedying these. Discussion of the paper was opened by Dr. T. T. Clohessy of Phoenix.

Dr. Mark P. Beam, of Albuquerque, presented the record of a case of an obscure lung condition whose nature remains doubtful.

The paper of Dr. Willis W. Waite of El Paso, on "Who Should be Called a Pathologist?" was read by title.

In the evening the men were entertained at a buffet dinner and smoker by the Maricopa County Medical Society in the dining room of the Westward Ho. Dr. F. L. Reese was in charge of the entertainment, which was varied and hilarious.

The Ladies' Auxiliary of the Maricopa County Medical Society entertained the visiting ladies at a reception, dinner and entertainment in the ballroom of the Westward Ho. Following their program, the Canti film was shown to them, at which time many of the men joined the party.

On Friday morning, the following surgical clinics were held at St. Joseph's.

Dr. R. B. Raney: Double inguinal recurring hernia. Under local anesthesia.

Dr. W. O. Sweek: Second stage pedicle graft. Unler local anesthesia.

Dr. B. L. Melton: Tonsillectomy. Under general anesthesia.

Dr. W. A. Schwartz: Iridectomy. Under local anesthesia.

Dr. John McLoone: (1) Lacrymal sac. Under local anesthesia. Tonsillectomy. Under local anesthesia.

(2) Esophagoscopy. Under local anesthesia.

Dr. V. Randolph. Bronchoscopy. Under local anesthesia.

The following surgical clinics were held at the Good Samaritan Hospital.

Dr. George Goodrich: Gastro enterostomy (possibly Philly operation on stomach) under ether and nitrous oxide.

Dr. George Goodrich: Hysterectomy. Under ethylene anesthesia.

Dr. Victor Randolph: Phrenicotomy. Under novocain anesthesia.

Dr. H. D. Ketcherside: Dilatation and curretage. Unler ethylene anesthesia.

Dr. L. C. Barlow. Appendectomy. Under ether anesthesia.

The following medical clinics were held at Good Samaritan Hospital.

Dr. E. L. Hicks: Case of carcinoma of the lung—demonstrated.

Dr. Victor Randolph: Bronchoscopy.

The following surgical and medical clinics were held at the Woman's Club auditorium.

Dr. Charles Ploussard: Case report, with x-ray films, of fracture, compound, comminuted, both bones of the leg.

Dr. J. Madison Greer: Fractures, "good, bad and indifferent," cases and x-rays displayed.

Dr. James E. Drane: Case of tetanus—cured.

Dr. B. M. Berger. Celiac disease.

Dr. Orville Harry Brown: Early heart strain; cases shown.

At the "clinical luncheon" on Friday, the annual business meeting was held. The secretary reported that the membership roll reached 300 during the year. Fifteen members have been removed from the roll. as follows: by death, three; by resignation, seven; by non-payment of dues, five. This leaves a net membership of 285. This number will be appreciably increased, since Maricopa County is planning to pay the dues of all their members out of their assessment for the expenses of this meeting.

The election of officers resulted in the following unanimous selection for the several officers:

President, Dr. E. Payne Palmer, of Phoenix.

First Vice-President, Dr. J. M. Greer, of Phoenix.

Second Vice-President, Dr. John W. Cathcart, of El Paso.

Secretary-Treasurer, Dr. W. Warner Watkins of Phoenix.

The invitation of El Paso for the 1930 meeting was accepted enthusiastically.

All other business details were left in the hands of the Board of Trustees of Program Committee.

The clinical talk was given by Dr. Leo Eloesser, on management of fractures of neck of humerus and femur. He thinks the principle of the airplane splint in fracture of the neck of humerus is wrong, and the usual method of abruction of femur neck fractures also is wrong.

The afternoon session opened with vice-president, Dr. J. M. Greer of Phoenix in chair.

Dr. Kelvin D. Lynch. of El Paso, presented a paper on "Problems of Surgery of Kidney and Ureteral Stones." This was freely illustrated by lantern slides and case histories.

Dr. W. G. Shultz, of Tucson, read paper on "Anomalies of Kidney Pelvis and Upper Ureter." Many lantern slides illustrated the several varieties of anomalies and their clinical significance was discussed.

Dr. W. R. Jamison of El Paso, wrote on "Solitary Cyst of Kidney." A general discussion of this very interesting condition was illustrated by case histories.

Discussion of this group of cases was opened

by Dr. George Shields of Phoenix. Drs. M. Matanovich and W. O. Sweek, of Phoenix, showed a patient in whom diagnosis of kidney cyst has been made. Pvelogram of the left kidney was also shown. Dr. E. Payne Palmer discussed two cases of kidney cyst operated upon by him. Discussion was closed by Drs. Lynch, Shultz and Jamison.

The next feature of the program was a symposium on heart disease, consisting of the following:

Dr. G. Werley of El Paso, read a paper on "Some Abdominal Symptoms Associated with Cardiac Diseases."

Dr. Robert S. Flinn of Prescott, discussed "Coronary Occlusion."

Dr. William Dock, of San Francisco, discussed "Some Details of the Treatment of Heart Disease."

These papers coordinated very admirably, and were presented by three men who are natural teachers, and the concensus of opinion among those who heard the entire program was that this symposium represented the high light of the scientific session.

Owing to the late hour, Dr. Orville H. Brown, of Phoenix, who was on the program to open the discussion of this group, asked to pass the discussion and allow the last paper to be read.

Dr. John W. Cathcart of El Paso, read paper on "The Pathelogical Cervix." He gave some general figures and information on cancer in general, using the topic of the cervix as illustrative of his remarks.

The discussion was opened by Dr. E. Payne Palmer, of Phoenix, followed by Dr. R. B. Holman, of El Paso, Dr. G. Werley of El Paso, Dr. Wm. Dock of San Francisco, Dr. Cathcart closing.

The annual dinner dance of the Association was held in the ballroom of the Westward Ho, with about 200 in attendance, this function closing the program of Friday.

On Saturday morning Nov. 9, the following surgical clinics were held at St. Joseph's Hospital:

Dr. Victor Randolph: Two cases of pneumolysis. Under novocain anesthesia

Dr. E. Payne Palmer: (1) Dilation of cervix and insertion of pessary. Orphorotomy under nitrous exide and novocain. (2) Resection of postoperative pelvic sinus under sodium and amytol anesthesia.

Dr. Leo Eloesser: (1) Bronchiectasis in children, two cases. Injection of lipiodol.

Dr. Edwin C. Bakes. Tonsillectomy. Under novocain anesthesia.

The following surgical clinics were held at Good Samaritan Hospital:

Dr. L. C. Barlow: Appendectomy. Under ether anesthesia.

The followwing medical clinics were held at Good Samaritan Hospital:

Dr. O. H. Brown: (1) Toxic adenoma of thyroid. (2) Decompensated heart, cirrhosis of liver and ascites. (3) Septicemia from bruise to healing boil.

Dr. G. E. Goodrich: Presentation of two cases of carcinoma of rectum.

The following surgical and medical clinics were held at the Woman's Club auditorium.

Dr. Dudley Fournier. Acute poliomyelitis—cured case demonstrated.

Dr. Frank Milloy: (1) Duodenal ulcer with hemorrhage. (2) Abdominal ascites.

At the clinical luncheon at the Westward Ho, two speakers were used. Dr. Roy Thomas, of Los Angeles spoke on the management of lobar pneumonia as carried out at the Los Angeles General Hospital. Dr. William Dock of San Francisco, spoke on some phases of chronic indigestion. Following the luncheon, the scientific program was carried out in the same dining room, without adjournment.

Dr. S. A. Schuster of El Paso, read his paper on "Some Effects of Aviation as Seen in Eye, Ear, Nose and Throat Studies." Discussion was opened by Dr. H. T. Bailey.

Dr. Leo Eloesser of San Francisco, gave his address on "Treatment of Bronchiectasis," using many lantern slides in illustration.

Dr. Orville Egbert of El Paso, presented paper on "Blood Sedimentation Studies in Tuberculosis."

Dr. R. B. Homan, of El Paso, read paper on "Tumors of the Chest," the discussion of which was opened by Dr. Victor Randolph.

Convention adjourned sine die.

At a public meeting, Saturday, Nov. 9, before a good crowd nearly filling the auditorium of the Woman's Club, the subject of cancer was presented by the Arizona Cancer Committee, Dr. E. Payne Palmer in charge. Dr. Albert Soiland, of Los Angeles. California, representative of the Society for the Study of Cancer, gave the address, and two films were shown. the Canti film, and a popular film teaching the dangers of cancer quacks, entitled "This Great Peril."

The entertainments sponsored by the Ladies' Auxiliary, in addiiton to those mentioned. included a reception on Thursday afternoon at the Westward Ho, a drive over the valley Friday afternoon, with tea at the Biltmore Hotel, and several smaller and more informal gatherings.

Privileges of the Phoenix Country Club were tendered all who desired to use the fine golf course; many members and visitors availed themselves of this opportunity.

Registration included the following members, visitors and visiting ladies:

Dr. A. C. Armbruster, Phoenix.
Dr. H. T. Bailey, Phoenix.
Dr. E. C. Bakes, Phoenix.
Dr. Kimball Bannister, Phoenix.
Dr. L. C. Barlow, Phoenix.
Dr. and Mrs. John V. Barrow, Los Angeles.
Dr. H. M. Benning, Phoenix.
Dr. B. M. Berger, Phoenix.
Dr. S. I. Bloomhardt, Phoenix.
Dr. G. H. Brockway, Phoenix.
Dr. O. H. Brown, Phoenix.
Dr E. H. Brown, Phoenix.
Dr. L. A. W. Burtch, Phoenix.
Dr. P. M. Butler, Winkelman, Ariz.
Dr. and Mrs. W. G. Carhart, Whipple, Ariz.
Dr. H. R. Carson, Phoenix.
Dr. J. W. Cathcart, El Paso.
Dr. V. R. Combs, Rice, Ariz.
Dr. and Mrs. P. G. Cornish, Jr., Albuquerque.
Dr. G. B. Couch, Phoenix.
Dr. D. C. Daniel, Mosquero, N.M.
Dr. S. C. Davis, Tucson.
Dr. William Dock, San Francisco.
Dr. C. A. Donaldson, Mesa, Ariz.
Dr. J. E. Drane, Phoenix.
Dr. R. C. Dryden, Pima, Ariz.
Dr. Palmer Dysart, Phoenix.
Dr. Orville Egbert, El Paso.
Dr. W. C. Ellis, Phoenix.
Dr. L. Eloesser, San Francisco.
Dr. and Mrs. F. B. Evans, Alamogordo, N.M.
Dr. F. T. Fahlen, Phoenix.
Dr. C. Fattebert, Phoenix.
Dr. H. J. Felch, Phoenix.
Dr. R. C. Foster, Phoenix.
Dr. Dudley Fournier, Phoenix.
Dr. R. S. Flinn, Prescott, Ariz.
Dr. F. D. Garrett, El Paso.
Dr G. E. Goodrich, Phoenix.
Dr. and Mrs. James J. Gorman, El Paso.
Dr. J. M. Greer, Phoenix.
Dr. J. M. Greer, Phoenix.
Dr. J. W. Hannett, Albuquerque.
Dr. D. F. Hochbridge, Phoenix.
Dr. E. L. Hicks, Phoenix.
Dr. Fred G. Holmes, Phoenix.
Dr. and Mrs. R. B. Homan, El Paso.
Dr. C. E. Irvin, Miami, Ariz.
Dr. G. B. Irvine, Lake City, Mich.
Dr. W. R. Jamieson, El Paso.
Dr. F. C. Jordan, Phoenix.
Dr. H. D. Ketcherside, Phoenix.
Dr. R. B. Kicklighter, Phoenix.
Dr. A. Kirmse, Tucson.

Dr. and Mrs. Allen K. Krause, Tucson.
Dr. G. J. Laben, Sacaton, Ariz.
Dr. S. D. Little, Phoenix.
Dr. K. D. Lynch, El Paso.
Dr. D. G. Lynwalter, Keams Canyon, Ariz.
Dr. A. J. McIntyre, Phoenix.
Dr. J. J. McLoone, Phoenix
Dr. W. M. Maloney, Phoenix.
Dr. and Mrs. G. F. Manning.
Dr. M. Matanovich, Flagstaff.
Dr. and Mrs. A. Matschke, Clemenceau, Ariz.
Dr. J. M. Meason, Chandler, Ariz.
Dr. J. Frank Millov, Phoenix.
Dr. H. P. Mills, Phoenix.
Dr. and Mrs. J. R. Moore, Jerome, Ariz.
Dr. and Mrs. J. W. Morris and daughter, Safford, Ariz.
Dr. E. Payne Palmer, Phoenix.
Dr. and Mrs. F. P. Perkins, Tucson.
Dr. E. W. Phillips, Phoenix.
Dr. C. N. Ploussard, Phoenix.
Dr. and Mrs. V. G. Presson, Tucson.
Dr. R. L. Ramey, El Paso.
Dr. Howell Randolph, Phoenix.
Dr. Victor Randolph, Phoenix.
Dr. R. B. Raney, Phoenix.
Dr. F. L. Reese, Phoenix.
Dr. Mayo Robb, Phoenix.
Dr. S. A. Schuster, El Paso.
Dr. W. A. Schwartz, Phoenix.
Dr. W. S. Sharpe, McNary, Ariz.
Dr. F. B. Sharp, Phoenix.
Dr. A. A. Shelley, Phoenix.
Dr. H. H. Sherman, Phoenix.
Dr. G. E. Shields, Phoenix.
Dr. W. G. Shultz, Tucson.
Dr. L. M. Smith, El Paso.
Dr. Willard Smith, Phoenix.
Dr. Albert Soiland, Los Angeles.
Dr. and Mrs. J. W. Stacey, Yuma, Ariz.
Dr. R. J. Stroud, Tempe, Ariz.
Dr. and Mrs. C. R. Swackhamer, Superior, Ariz.
Dr. O. Taney, Phoenix.
Dr. L. H. Thayer, Phoenix.
Dr. J. W. Thomas, Phoenix.
Dr. L. M. Thompkins, Gilbert, Ariz.
Dr. and Mrs. W. E. Vandevere, El Paso.
Dr. W. W. Watkins, Phoenix.
Dr. G. Werley, El Paso.
Dr. A. J. Wheeler, Phoenix.
Dr. W. W. Wilkinson, Phoenix.
Dr. M. E. Wilson, Phoenix.
Dr. G. H. Woodall, Phoenix.
Dr. Harley Yandell, Phoenix.
Dr. and Mrs. C. E. Yount, Prescott, Ariz.

The Southwestern Surgical Supply Company had a nice exhibit of instruments and x-ray apparatus.

The C. V. Mosby Book Company, of St. Louis, showed a very excellent line of medical books and medical publications.

W. WARNER WATKINS,
Secy.

DIAGNOSTIC FORUM

The following cases are to be studied and discussed by the Yavapai County Medical Society and Medical Officers of Fort Whipple. Any county society, hospital staff, or group of doctors, will be welcome t osubmit discussions of these cases for publication in this journal.

At the Yavapai County Society meeting of February 4th, the following two cases are to be discussed:

Case 1. Group I.

Dermatitis and Drowsiness

An unmarried English nursemaid thirty years old entered May 24 complaining of inflammation of the skin of one month's duration. She was very drowsy. The history was obtained in part from her sister, in part from the dermatologist who sent her in.

Six months before admission she began to have frequent head colds, to menstruate every two weeks, and to have pimples during catamenia. Since the onset she had been losing weight. These symptoms continued four months before she consulted a physician. Under his treatment she felt better for a while, and the skin condition improved. After two weeks, however, she felt weak, tired, and had no appetite. Her skin at that time was clear. Four weeks before admission she had generalized itching, weakness and loss of appetite and sleep, and an eruption of dark red pin-head sized spots on the arms, neck and face. Her temperature was 102°. A diagnosis of measles was made, though she had no cough or coryza. She was in bed for a week with fever, which gradually quieted down. She was up and about for a while. A week before admission she began to have considerable oozing about the neck and axilae. This persisted until May 12. A later history showed that on April 6, thinking she was pregnant, she had a curettage performed. From this time she felt very badly. She took medicine by mouth, but had no injections. Two weeks before admission she felt much worse, and entered another hospital. On admission there she presented a picture of a generalized exfoliating skin condition with marked crusting, oozing and swelling about the face, neck, arms, hands and axillae. Under treatment this gradually subsided to the dry exfoliative stage in which she entered the Massachusetts General Hospital. She had the same bronzed color which she had on admission here. She ran a temperature reaching 104° for the first week. Her elimination always remained low. She had nausea. For the past week she had had many loose movements and cramps in the abdomen. No microscopic blood or pus was found in the stools. She became more stuporous and passed smaller and smaller amounts of urine.

Clinical examination showed an emaciated and very drowsy woman lying in bed. The breath had a sweetish odor. The skin was dry and brownish throughout, and showed extensive exfoliation. The sclerae and conjunctive were injected. The base of the right lung posteriorly showed diminished resonance, breath sounds and voice sounds. The heart showed no enlargement to percussion. The apex impulse was not seen or felt. The action was rapid. The sounds were not of good quality. The blood pressure was 95/65. The abdomen was distended and tympanitic. The liver edge could not be felt because of tenderness and a suggestion of spasm in the right upper quadrant. The upper edge of liver dullness was in the 7th space. Both labiae were swollen. All the extremities showed coarse tremor due apparently to weakness. The pupils were normal.

Urine: amount 5 to 35 ounces, specific gravity 1.012 to 1.013 at all of 6 examinations, cloudy and alkaline at all, a trace of albumin at all, red cells and leukocytes at three, loaded with both at one. Arsenic determination test on the urine showed no arsenic. Blood: 11,500 leukocktes, polymorphonuclears 76 per cent., hemoglobin 60 per cent., reds 3,270,000. May 28 non-protein nitrogen 300, blood sugar 196 milligrams, blood chlorides 605 milligrams; May 31 non-protein nitrogen 230, blood sugar 117, creatinin 12.0 milligrams. Smear from throat negative. Stools negative.

Temperature 98° to 100.3° for the first two days; then 96.5° to 99°, wtih a terminal rise of 103.5°. Pulse 90 to 130. Respirations normal except for a terminal rise to 40.

After a subpectoral of 2000 cubic centimeters of glucose in saline the patient felt and appeared better. The pulse was stronger. She voided only once in the first two days. She was catheterized and an ounce of clear urine withdrawn. May 26 she was given a second subjectoral. She felt much better, was less drowsy, passed more urine and had less diarrhea. The blood pressure was 110/70. There was a cavernous breathing above the level of dull-

ness at the right base. A medical consultant suspected pathology at the right base and asked for x-ray examination. He found an apical systolic murmur and a systolic with a high-pitched diastolic at the base, but found no evidence of pericradial effusion. X-ray examination showed some decreased radiability of the right base. The diaphragm however was visible. The costophrenic angle was clear.

June 4 the patient went into coma, was incontinent, and showed considerable twitching. A subpectoral of 1600 cubic centimeters was given with no subjective improvement. The coma deepened, the twitching increased, the temperature, pulse and respirations rose. June 6 she died.

Case 2. Group II.

Diarrhea and Pain in the Right Foot

A married American woman forty-seven years old entered April 30 complaining of intermittent diarrhea of four months' duration and pain in the right foot and leg for a week.

Five months before admission she had an attack of grippe. She stayed in bed a week, then felt well until the end of the month. Then she had an attack of diarrhea lasting a day with some fever and cramp-like generalized abdominal pains. After this she had constipation for four days, the pains continuing. She strained a good deal at stool and developed hemorrhoids. She took laxatives until her bowels began to move. Her physician gave her some medicine which seemed to keep her bowels regular. The pains persisted for two weeks. During that time she stayed in bed. After this attack she had six or seven similar ones, each a little longer and more severe than the last, always accompanied by the pains and followed by constipation. She had not however been forced to go to bed snice the first attack until the last one. The stools had been soft, but otherwise normal. February 28 she was examined at the Consultation Clinic of this hospital. Vaginal examination was negative. The urine was negative. There were some small hemorrhoids. Proctoscopic examination showed a pale, slightly granular mucosa but no ulcerations. The whole right side of the abdomen showed tenderness. Fluoroscopic examination with a barium enema showed that the whole colon filled normally. The tip of the cecum was displaced toward the midline and overlay a loop of the sigmoid from which it could not be separated. The colon seemed somewhat limited in motion. Chest examination showed the diaphragm in the normal position. The lungs were clear. A diet was advised which the patient did not follow. Four weeks before her admission to the hospital the last attack of diarrhea began suddenly. Her bowels moved three or four times a day at first, then one day moved fifteen times. The condition, inciuding the usual cramp-like pains, became gradually worse. For two weeks she had had attacks of nausea without relation to eating and had vomited several times. For a week she had had difficulty with micturition. Then she began to have severe dull aching pain in her right knee radiating down the leg to the foot and most severe in the great toe. The leg and foot became cold and tingled. This condition became gradually more severe. Pills given by her physician relieved the pain, diarrhea and cramps. Her bowels had not moved for four days before admission. Three days before admission she found the foot was becoming purplish, especially in the region of the great toe. The color gradually deepened. She had been in bed for four weeks. During this attack and the previous ones she had had fever, 101° to 102°. She thought she had gained about two pounds since the onset of the illness.

One brother died of tuberculosis. The patient was not exposed.

She had always been well and strong except for an attack of influenza twelve years before admission. She was in bed for two weeks. She had had one miscarriage following a fall. Her bowels had been slightly constipated for years.

The patient was having such severe pain in the leg and foot that the history was left unfinished.

Clinical examination showed a fairly well developed and nourished woman lying in bed groaning. Skin hot, dry, very coarse. Hair dry. Marked pyorrhea. Tongue showed a wavy brownish white coat. Boggy submental glands. Abdomen distended but rather soft, tympanitic. No dullness in the flanks (?) palpation difficult. No organs or masses felt. Liver dullness at the fourth rib anteriorly. Vaginal examination showed creamy discharge; tenderness in the left lower quadrant on bimanual palpation. Rectal examination moderately painful; nothing was felt. Right ankle cool, foot cold and tender. On the right great toe was a circumscribed deep purple area, tender, not swollen. On the heel was a similar patch. No dorsalis pedis pulsation was felt. Pupils contracted (morphia); reactions normal. Knee jerks normal.

Before operation urine normal in amount, specific gravity 1.008 to 1.012, a few leukocytes and rare red blood corpuscles at two of three sediment examinations, 50 to 60 leukocytes per field at a fourth. (No catheter specimen.) Blood before operation: 19,000 to 9,000 leukocytes, 84 per cent polymorphonuclears, hemoglobin 75 per cent, reds 5,350,000, slight achromia. Two Hintons negative. Stools: guaiac negative at six examinations.

Before operation temperature 99° to 103.5° with two drops to 97° and 97.6° May 9 and 11.

At x-ray examination the arteries of the right leg were not visible. The bones showed no definite variatioin from the normal. The lung fields were clear. The diaphragm was rather high on both sides. The heart shadow was not remarkable.—possibly a little prominent in the region of the left ventricle.

With enemas the distention became less and the bowels began to move normally. The patient continued to have considerable pain in the right foot. May 19 the right leg was amputated at midthigh under spinal novol. Pathologic examination of the popliteal, anterior tibial and dorsalis pedis arteries showed thickening of the intima and an increase of fibrous tissue in the media; no calcification.

May 24 the patient vomited. Four days later she was still vomiting, had a chill and very poor pulse, and looked quite ill.

May 29 a second operation was done.

June 9 there was some sloughing of the fascia from the leg wound. Two days later there was more separation and more sloughing. There was only occasional vomiting.

June 12 Alpine lamp treatment was started. The separation and sloughing increased. A large decubitus developed over the sacrum. The patient became irrational. She took little by mouth.

June 17 she died.

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DR. WHITMORE

For about a year, or ever since the astounding news first was published, the editor has had in mind the difficult task of making some expression which might represent the thought of the medical profession of the southwest, over the calamity which we feel has come upon us through the trouble involving Dr. Whitmore. Several editorials have been started and laid aside, owing to what was felt to be a lack of complete understanding of the situation, and through fear of adding unintentionally to the difficulties already involving one whom the editor, regardless of all circumstances, is proud to regard as a friend. During the trial the writer was sent for to testify regarding Dr. Whitmore's standing and high repute during his more than thirty years in practice in Arizona, but he was away on a visit to the east. Others doubtless supplied this testimony, because dozens of doctors in Arizona are well acquainted with his long and honorable career as the "dean of the medical profession" in this state.

The very fact that his place among us has been so unquestionable makes the present situation so overwhelming to us, so completely beyond our comprehension. It is unthinkable that there has been any Hyde and Jekyll mixture behind that calm and gentle face, beyond that highly ethical and ever honorable conduct, underneath that pleasant and courteous personality. We prefer to believe that because of some as yet unfathomed pathology, that mind was clouded until it no longer could guide itself aright and no longer could appreciate when it had left the pathway it had so proudly followed during a long and honorable life. Disease we can understand and regret. Crime, deliberately conceived and consciously carried out by Dr. W. V. Whitmore,—our friend,—we cannot understand and refuse to believe.

THE ANNUAL CONFERENCE OF SECRETARIES AND EDITORS

The annual conference of the secretaries of state medical associations and editors of the official state medical journals, called by the American Medical Association, held in Chicago on Nov. 15 and 16, was unusually well attended this year. For the first time, so far as we can recall, the secretaries for Arizona and New Mexico, as well as the editor, were all three present.

Many problems of organized medicine, as well as of the profession in general, were presented. The discussion which occupied the center of the stage grew out of a paper on industrial medicine which covered its relation to, and its effect upon, the work of the private practitioner. This paper will appear shortly in the Bulletin of the American Medical Association, and while it specifically stated that industrial medicine as we understand it in the southwest is not the kind of industrial medicine the speaker referred to, the discussion which followed ranged widely over various phases of the subject. There is much meat in this paper and it is commended to the attention of our readers when it appears. Some interesting thoughts will be found in the Bulletin. Among them was the mention by Dr. Kress, of Los Angeles, of the proposition now being considered by the California State Medical Association, to take over and administer the medical and hospital costs of industrial cases in that state. This will require the Association to under-write, as an insurance carrier, such costs to the extent of possibly twelve million dollars a year.

During the course of a subsequent meeting attended by the editor in Toronto, it was interesting to hear the secretary of the Canadian Medical Association speak of the plan that organization is sponsoring to have the government provide medical attention,

by insurance, to the general public. His closing remark was that the medical profession must either take the lead in studying the problems of medical care and find the solutions which the public welfare demands, or suffer that public to take the lead away from them; that we must either lead or be led; at this time we can choose, while a little later we will have no choice.

The Canadian plan involves nine essential points, among which are included,—that the plan must include the entire population and must be compulsory; it must provide for all members of families and not solely for the wage earners; it must provide for all illness and not solely for accidental injuries; it must provide adequate hospital care; it must preserve the right of choice to patient and physician; it must maintain an adequate scale of remuneration for services rendered. It remains to be seen whether the American medical profession, many of whom pretend to envy some of the customs and liberties of Canada, will follow their northern confreres into this path, which they do not hesitate to call "state medicine."

At the beginning of the Chicago conference, Dr. Olin West, secretary of the American Medical Association, was presented with a beautiful watch, a gift of appreciation from the members of the conference for his many personal courtesies, as well as his fine and effective work in the organization.

Without doubt this annual conference is one of the most effective means of preserving the compactness and harmony which characterizes this, the largest and most powerful scientific organization in the world.

We of the Southwest believe that our climate affords definite advantage over most localities for a recovery of many types of illnesses. We also believe that those who come here especially for our winter months, from the rigorous climates of the north, east and middle-west, have greater joy and happiness in store for them and a greater prospect of life. Such beliefs on our part should not make us oblivious to our general responsibilities in matters of public health.

Our territory is desert and mountainous; our communities, in the main, are far apart; large areas of land are unsettled and perhaps only visited now and then by the tourists or residents of the southwest. It is obviously impossible to afford the necessary sanitary arrangements for the open spaces. In lieu of this our public needs to be taught certain simple sanitary measures, especially in regard to sewage disposal; but there is a greater problem: That of the care of contagious diseases.

In certain sections of our great southwest it is evident that there has been a carelessness about reporting contagious diseases. This carelessness has doubtless been increased by the knowledge that there has been no proper opportunity for complete isolation of the case or cases, when they are reported. Where quarantine signs are placed upon houses, hardships upon the family often result. The wage earner perhaps loses his position, the healthy children are kept out of school and inconveniences and distresses are caused in numerous ways, by virtue of a quarantine.

Many of our communities are too new and too small to afford elaborate city and county hospitals. The time has now come, however, when every county in most of the southwestern states must begin to think seriously of a county hospital.

In the county with a small population, the county hospital might well be provided with rooms for private patients. This would solve the hospital problem in many localities. As it now is, many patients, in order to receive hospital treatment, must be transferred many miles.

The physicians should be the leaders in the communities for the establishment of county hospitals.

O. H. B.

The 1929 meeting of the Medical and Surgical Association of the Southwest has come and gone. Writing as a members of the Maricopa County Medical Society: We were not only proud and delighted to entertain this splendid organization but we believe we are better for having done so. It stretched us a bit, here and there, especially to provide clinics. No matter how much good our visitors may have obtained from these clinics we ourselves were benefited even more. It goes without saying that we were benefited by the excellent papers and the speeches at the banquet and from our many new contacts. We look forward to the time when we may again be the hosts to the Association.

O. H. B.

THE ANTI-DIPHTHERIA CAMPAIGN IN ARIZONA.

Several months ago the State Board of Health began quite an intensive, state-wide diphtheria prevention campaign, this being not unlike the campaigns conducted in practically all the other states in the union. The reaction among the physicians has been fairly satisfactory, but there is still a great deal of territory to be covered.

To Dr. C. E. Irvin belong the honors. Dr. Irvin, who is city health officer of Miami,

was recently made school physician, and he has immunized between fifteen hundred and two thousand school children without a single dissenting voice from the parents.

Dr. R. V. Partlett, physician in charge at Sacaton, writes that the white children attending school are one hundred per cent immunized and that soon he will have given the toxin-antitoxin to the two hundred Indian children attending the Pima Boarding School.

In Pima County the school nurse, Miss Helen Bocock, has two schools one hundred per cent immunized.

The State Superintendent of Public Health, while attending the annual meeting of the American Public Health Association at Minneapolis, was present at a breakfast given for interested health men in relation to the anti-diphtheria campaign, and gained a great deal of information in the hour and a half discussion following the breakfast.

Among the speakers was Dr. Park, of New York, who has probably done more than any one man in establishing standards of toxin-antitoxin and working out percentages of immunities. In a conversation with him after the meeting, Dr. Stroud learned further about some of the points which he brought up and the following are a few of the suggestions which Dr. Park made which may be of good service to physicians engaged in administering toxin-antitoxin:

1. Toxoid gives the same effect as toxin-antitoxin. It is no better—no worse, but just another form of getting the toxin to the patient. Both toxoid and toxin-antitoxin require three doses, as only 80 per cent of immunity is conferred by using two doses of either one and something over 90 per cent after the third dose. If you use toxoid do not stop at the manufacturer's statement that two doses are all that are necessary, but it is all right to use it.

2. The toxin-antitoxin made of goat serum will not sensitize the individual to horse serum but there are individuals who have an allergic reaction to goat serum.

3. The toxin-antitoxin or toxoid begins to deteriorate from the time it is made, like any other vaccine, and you may expect less positives from older vaccines even if the date has not yet expired. There is great variance in the commercial products as to their ability to confer immunity.

4. He suggested that when toxin-antitoxin is given from the bulk package, the residue be destroyed at the end of the day, for a small amount of contamination from staphylococcus resulted very disastrously during one of the campaigns in Australia and one in Austria.

5. The deaths in the Dallas disaster resulted from the fact that the company supplying the toxin-antitoxin (and this was in the early stage) was not at that time prepared to send such large quantities and in their haste they sent out some toxin-antitoxin which was presumably tested aganist the guinea-pig and found non-toxic; whereas the toxin-antitoxin actually sent was the toxic lot which had killed many guinea pigs. The fault was not that of the standard toxin-antitoxin. Such an accident could hardly occur at the present time.

6. Outside of these contaminations and that one disaster in Texas there is no known case of death from giving toxin-antitoxin, even in repeated doses. One physician by mistake at one time gave three doses of 5 c. c. each to an individual without serious result and then called the State Board of Health to ask how much more he needed to give.

7. No matter how many doses are given it seems that immunity cannot be conferred on 100 per cent of the people, the giving of four doses instead of three merely making the percentage of immunity slightly higher.

8. A small needle 26 guage, one-fourth inch long is suggested because it gives little pain and if it breaks it is generally at the shank and can be easily taken from the arm. Longer needles may break in the middle and make a difficult job to get.

9. Dr. Park further suggested that a rubber stopper never be taken from the bottle, because of contamination, as no preservatives can be used as in ordinary vaccines. Keep the toxin-antitoxin at low enough temperature at all times so that deterioration does not take place.

10. In some clinics the first dose of toxin-antitoxin is sometimes given just under the skin, and if no reaction occurs the child is presumed to be immune and the second and third doses are not necessary, although Dr. Park cautions against too liberal interpretation of this.

GRANT COUNTY (N. M.) MEDICAL SOCIETY

The regular monthly meeting of the Grant County Medical Society was held on October 25th, at Fort Bayard, with thirty physicians in attendance. A banquet was served at the Officers' Mess at 6:30 p. m.. and following this adjournment was taken to the club for the meeting.

Dr. E. A. Duncan, of El Paso, gave a talk on diabetes, presenting valuable formulas for use when prescribing foods for this class of patients. It was an able presentation, showing a thorough knowledge of this work in which he has specialized.

Dr. John W. Cathcart, of El Paso, read a paper on Cancer of the Cervix. This paper was very interesting, and it gave the history of the disease and outlined measures to establish a marked reduction in number of cases, when properly diagnosed and the appropriate treatment instituted.

The monthly program for the ensuing year for this society will include the following:

January 25th

Election of officers for the ensuing year.

February 22nd.

Spontaneous Pneumothorax, Clinical Record and X-ray Plates with Case.....Dr. C. W. Tucker

March 29th

Clinic: Cases presented; Lobar Penumonia and Valvular Heart Disease .....Dr. L. T. Ferrell

April 26th

Vincents Angina: Treatment.....Dr. W. J. Baker
Bateriology of Vincents Angina....Dr. W. J. Byles

May 3st

Appendicitis, Diagnosis and Treatment of.....
.....Dr. N. D. Frazin
Clinic. Cases, Tuberculous Enteritis.....
.....Dr. C. K. Summers

June 28th

Obstetrics, Placenta Previ ,aDaginosis and Management .....Dr. R. R. Robinson
Clinic cases, Bronchiectasis.....Dr. F. L. Borglum

July 26th

Industrial Surgery.....Dr. S. J. Hanks
Clinic: Diagnosis of Pulmonary Tuberculosis.....
.....Dr. S. J. Mann

August 30th

Bacteriology and Pathology of Influenza.....
.....Dr. V. K. Adams
Nasal Accessory Sinuses in Influenza.....
.....Dr. J. L. Donahue

September 27th

Tuberculous Meningitis, with Specimen and Laboratory Report .....Dr. E. A. Patton
Diabetes .....Dr. F. N. Carrier

October 25th

Demonstration: Electrocardiograph
Clinic—Heart Cases
Cardiac Manifestations of Goiter.....
.....Dr. R. W. Browne

November 29th

Anesthesiology .....Dr. R. W. Groom
Asthma Clinic (presentation of cases and treatment) .....Dr. W. J. Roberts

December 27th

Artificial Pneumothorax, Indication and Vuale .....Dr. Divid Kramer
Value of Blood Pressure Readings....Dr. J. P. Wood

WILLIAM R. WASHBURN,
Sec.-Treas.

PERSONALS

DR. ELTON R. CHARVOZ is confined at the time of writing this, to his home, seriously ill with pneumonia.

DR. M. B. BENNING, who was graduated from Columbia University last June, will be here for another week to ten days. He will then go to New York to enter the Roosevelt Hospital for a two-year internship. Dr. Benning is the son of Nelson W. Benning, secretary of the Phoenix Y.M.C.A.

THE MEDICAL AUXILIARY held its regular November meeting at the residence of Dr. and Mrs. Orville Harry Brown, Monday evening, November 25. After the Staff Meeting of the Good Samaritan Hospital, a number of the doctors called there for their wives and enjoyed refreshments, which the ladies had provided, consisting of cider, gingerbread and nuts.

DR. J. W. BOTHARD, recently from Colorado, has opened an office at Tolleson, Arizona.

DR. W. WARNER WATKINS of the Pathological Laboratory, Phoenix, left about November 10 for a month's sojourn in the east. He was in Chicago to attend the annual conference of the editors and secretaries. He also went on to Rochester, New York to attend a school given by the Eastman Kodak People upon the processing of x-ray films. He visited Toronto, Canada, where he attended the Radiographical Association of North America, reading a paper.

DR. LOREN CALL BARLOW recently made a trip to San Diego and Los Angeles.

DR. LESLIE R. KOBER, a graduate of both Northwestern University and Northwestern Medical College and intern of Wesley Hospital for sixteen months, is now associated with Dr. Kimball Bannister.

DR. ROBERT R. CRAIG, long prominent in Phoenix medical circles, recently announced that he had retired from all practice. Dr. Craig has extensive real estate and other holdings and will doubtless be kept busy enough looking after business affairs.

DELAMERE F. HARBRIDGE, Jr., son of Dr. and Mrs. Delamere F. Harbridge, of Phoenix, and Miss Dorris Oliver of Highland Park, Illinois, were married at the Trinity Cathedral by Dean Edwin Lane, November 9.

DR. ALLEN K. KRAUSE, former professor of tuberculosis at Johns Hopkins and editor of the "Review of Tuberculosis," and well known for his numerous researches on the subject of tuberculosis, has moved to Tucson and assumed charge of the Desert Sanatorium. Dr. Krause will spend a portion of his time there during the course of the winter.

GOOD SAMARITAN HOSPITAL (Phoenix)

(September Staff Meeting)

The Medical and Surgical Saff of the Good Samaritan Hospital met Monday evening, Sept. 30, with 37 doctors and four visitors in attendance.

Minutes of the last meeting were read. It was recommended by the council that Drs. H. D. Ketcherside, B. N. Berger, H. Randolph and Mayo Robb be approved to the hospital board for admission to staff. Carried.

Miss Hicks from the nurse's official registry explained the operation and purpose of the registry and requested the support of the doctors.

Dr. Greer announced that the Medical and Surgical Association of the Southwest meets November 7, 8 and 9 and that the forenoons will be devoted to clinics. Those who have interesting cases will report to the committee in charge, Dr. Greer, chairman; Drs. Howell Randolph, John J. McLoone and Orville Harry Brown.

DR. J. D. HAMER reported for the records committee upon the deaths for the vacation time as follows:

CASE 6335. Expired suddenly while being taken from operating room; a male, age 52, who had had teeth extracted under gas anesthesia. Anesthetist remarked on record that patient had good respiration at termination of operation. Pulse rapid, not full or pounding, as he has turned on side to facilitate free passage of blood from mouth, he suddenly ceased breathing; the pulse became imperceptible, and did not respond to artificial respiration or medical stimulation including an intra-cardiac injection of adrenalin. Record in question did not contain statements concerning the physical condition or history. The operation lasted 75 minutes. Strychnine was given during the extraction, done chiefly under nitrous oxide and ethylene. We have nothing from the record to indicate this patient's status as a surgical risk, nor is the probable cause of death indicated.

CASE 6270. Expired within 36 hours after being brought into hospital in an unconscious condition. No history obtained. Physical reports all negative except for a left sided paralysis and convulsive-like moevments of right side and Cheyne-Stokes breathing. Temperature normal on admission, reaching 106 at death. Urine showed albumen. A diagnosis conjectured and inserted was cerebral hemorrhage, probably derived from retrospection and assumption rather than from actual findings on the case. Patient was a male, about 65 years of age.

CASE 6186: A male, age unknown, expired just after reaching hospital, and physician states that he had seen the patient 20 minutes previously, suffering apparently from an apopletic stroke.

CASE 6492: Male, age unknown, lived 13 days in hospital suffering from a "cerebral hemorrhage" with a right sided hemiplegia; course, as recorded was decidedly downward with no response to treatment.

CASE 6478: Female, age 58, expired within two hours after admission. Physical examination states

pulmonary findings suggestive of tuberculosis, also a greatly enlarged heart, with barrel shaped chest. Diagnosis recorded as pulmonary tuberculosis; no mention of diagnosis of heart.

CASE 6469: A male, 27 years of age, expired 30 hours after admission from effects of gasoline burns, received on face, neck, back, arms, both axillae, right hip, thigh and leg, left hip and knee. Lungs were congested from inhalation of carbon monoxide, and heart showed evidences of endocarditis. The evidence is not stated.

CASE 6076. Expired third day after admission. Male, age 64, who began having a discharge from left ear on June 10 and began having severe headache and backache a few days later. Became unconscious on June 17 with a temperature of 104. Past history: Typhoid 1907; influenza 1918; apopletic stroke 1921, since there has been a complete recovery. Six to eight wweeks ago was in hospital with "infected bladder" and was treated at that time. Upon admission there were definite signs of meningitis and surgical interference was thought inadvisable at the time; and it was thought the causative factor in death was a ruptured brain abscess, although a chronic prostatitis might be a factor in having a bearing on the cerebral process. Spinal puncture was done: Wassermann negative, no bacteria, cells chiefly monos, to number 1960. No tuberculosis. Ear culture showed staphylococcus. W.B.C. 23,100; polys. 91; Monos 9. X-ray report says a probable left mastoiditis.

CASE 6170: Typhoid fever, male, age 21, who according to the record, has been ill for four weeks previous.y and had severe epistaxis and bowel hemorrhages for a few days previous. Patient was in extremis on admission and only lived two hours.

CASE 6223: Male with advanced pulmonary tuberculosis and Pott's disease died of a heat stroke.

CASE 6198. Female, expired of a heat stroke. Both 6223 and 6198 had fevers of 109 on admission.

CASE 6177: A female age 33. On June 29 went to work in the morning and returned home two hours later complaining of feeling dizzy and tired. A little later patient had a convulsion; a physician was called. His physical record notes small contracted pupils, stertorous breathing, blood pressure 65/5, pulse 120 strong; a systolic murmur heard at apex and radiating to the left. Percussable borders of heart are not given. No other findings, as patient only lived 15 minutes after admission. Verified temperature was 111 degrees, rectally, taken three times. Diagnosis was acute dilation of heart, and embolism into medulla. Possibly a diagnosis of heat stroke would be just as good in the light of the physical findings and temperature.

CASE 6202: Gas bacillus infection, developed within few hours after a male, age 27, received a badly mangled arm while riding in a bus. Had apparently fallen asleep with arm hanging out window and was side-swiped by another passing bus. Upon admission patient was in severe shock and treatment was directed toward alleviating this condition. Within 18 hours patient had definite signs of gas gangrene infection; parfringens anti-toxin, 20 cc, was given intravenously; the arm was amputated at the shoulder but patient expired same day.

CASE 6322: Male, age 40, expired from effects of cirrhosis of liver (probably). Lived only one day after admission. No history obtained except that he had been jaundiced for one month with pain in upper abdomen, distention, dizziness and weakness. Had been a heavy whiskey drinker for years. Abdomen was distended and had severe tenderness over gall bladder, liver was not palpable. No masses were palpable. No other positive findings recorded to assist in confirming a diagnosis. Urine was negative, temperature normal.

CASE 6073: Male, age 63, in hospital from June 18 to July 2. Patient was taken ill on March 1st with painless jaundice, and some time later developed a swollen, tender right knee. Past history: smallpox when 17 and typhoid when 32. Positive physical findings recorded were slight tenderness over the liver, generalized jaundice, and a swollen right knee. Marked emaciation, mouth edentulous, abdomen distended and doughy to palpation. Urine essentially negative except for bile. W. B. C. 13,900, polys. 86, monos, 14. Diagnosis recorded was obstruction of common duct but physicians apparently had no idea what was causing the obstruction. No diagnosis of knee condition was recorded. Patient's course was gradually down-hill, temperature fluctuated greatly, being 105.6 on June 25; but was 99 the day of death.

CASE 5993: female, age 68, lived 10 days in hospital. Gave history of pain in chest on left side over a period of a year; pain also in epigastrium and over right side. Jaundiced three weeks prior to admission, and has had severe epigastric pain during past two weeks with nausea, vomiting, loss of strength and weight. Physical findings warranted a diagnosis of cancer of stomach and liver with a distended gall bladder.

CASE 6151: Male, age 60, came to operation for a ruptured gangrenous appendicitis with temperature of 97.6; pulse 124 and very toxic. Peritonitis had developed before operation and patient expired within twenty-four hours.

CASE 6196: Female, age 18, whose chart contains no history of case. Surgeon reported a sloughing, gangrenous, appendix with considerable free intra-abdominal pus. Patient was very toxic and expired in twelve hours regardless of supportive treatment.

CASE 6200: Male, age 48, operated for an acute appendicitis and surgeon reported a gangrenous sloughing appendix, heavily bound down with plastic adhesions. This patient developed a fecal fistula, apparently and continued fecal discharge from first post-operative day until death, 22 days later.

COMMENT

The three deaths from appendicitis record the danger of such infections, unless diagnosed and appendix removed early. Inflammation of the peritoneum continues to be a common malady, not because its tissue is so peculiarly susceptible to infection, but because it is so often subject to attacks of peritonitis resulting from ruptured appendices, resection or incision of the bowels and the like. This development of peritonitis and its outcome depends on various factors involved in what is termed immunity, phagocytosis, proliferation of endothelial cells. The irritation of the omentum and production of immune bodies in the blood stream, are factors which destroy bacteria, neutralize toxins and "wall off" infection. Like all infections, the outcome depends upon other factors too. If the organisms prove too virulent localization is lost, and extension takes place. The idea of trying to find some other method to reinforce natural defensive processes has occurred to investigators. Earlier attempts sought to increase intraperitoneal leucocytosis by the use of sterile irritants, such as ether. Now, as in Mayo Clinic, attempts are being made to mobilize other sorts of defensive forces, such as the colon bacilli and enteric streptococci, the common microbes soiling the peritoneum. Intraperitoneal injections of combined vaccine of streptococcus and colon seem to afford striking protection in animal experiments and the treatment will no doubt extend to such cases as these three

cases represent—the injection of vaccine to stimulate increased peritoneal resistance.

CASE 6135: Female, age 49, expired with a diagnosis of myocarditis. History was not obtainable. Patient was a rather corpulent anemic person with muddy colored skin; no thyroid enlargement, no lung diseases. Heart normal in size and position, beating 120 per minute. Pulse weak, almost imperceptible at the wrist. Blood pressure 124/82. Abdomen distended and hard, with tenderness over gall bladder. No jaundice. W.B.C. 20,200, polys. 87, monos., 13. G. I. series negative, for definite pathology of G. I. tract. No urine report. Patient's course was definitely down-hill; death occurring three days after admission.

CASE 5951: Female 26, expired with diagnosis of exophthalmic goitre, one day after admission. Patient's history and findings conclusive for toxic goitre, and was submitted to partial thyroidectomy under ethylene-oxygen and ether, anesthesia. Left lobe, isthmus and one-half right lobe were removed. Expired two hours after surgery in deep cyanosis.

CASE 6583: Empyema in child three years of age. To be discussed during this meeting.

SUMMARY

The death list as handed to me consisted of 21 deaths from following causes: Cerebral hemorrhage three, tuberculosis one, burn case one, brain abscess and meningitis one, typhoid fever one, heat stroke two. acute dilation of heart one, gas bacillus infection one, cancer one, appendicitis and peritonitis three, myocarditis one, empyema secondary to pneumonia one, unclassified, biliary system, two.

Criticism of Charts: I. There is lack of sufficient physical, laboratory and other evidence stated to warrant the diagnosis made on some charts. II. Failure to state complete diagnosis on all abnormal findings. Many charts present only the outstandnig diagnosis, whereas all the pathological conditions found in the patient ought to be recorded under the head of diagnosis.

DR. V. KENNEDY, commenting upon one of the cases said the man was returned to his room from the operating room and died soon after. He said in regard to the position the patient is placed on the cart that in nose and mouth operations the head should be placed in a natural position to permit blood to escape from the nose and mouth. In case of a tumor or other pathology about the neck a twisted position of the head may cause injury to the vagus and possibly may even cause death.

Comments were made by various men on the startling fact that no autopsy had been made on any of the 21 persons who died during the summer. This is a lamentable fact and must be corrected.

Case No. 6239 was reported upon by DR. HAMER as follows:

The man was staying in the White Mountains for the summer-end, and he was seized with severe pains in his left upper abdomen. He was seen by Dr. Kennedy, who happened to be there, and after a few days of preparation he was sent from the White Mountains to Phoenix. On arrival in Phoenix he was much improved. It seemed that the automobile ride had done something to relieve his pain.

The history record says that the trouble started several days ago with severe pain in the left upper quadrant and his pain only abated when he stopped eating or took castor oil or enema.

He had had the usual diseases of childhood. Had "ptomaine poisoning" 25 years ago. He had a streptococcic infection of his right hand in 1917. His general health had always been good, except for constipation. He has always been a small eater. He urinates about one and a half quarts a day and seldom arises at night for this purpose. Examination shows that the teeth have pyorrhea and several caries. Head and neck are otherwise negative. Lungs seem all right. The heart is average in size and normal in position. The tones are good except there is a slight murmur systolic in time and heard best at apex. The skin of the abdomen is scaley. The liver is not palpable. There is definite tenderness on palpation of the colon. There are no masses nor hernias. The reflexes are normal. Urine was normal except for five to seven pus cells and three or four casts per high dry field. The blood showed 85 per cent hemoglobin; 5800 leukocytes; 50 per cent polynuclears; 41 per cent lymphocytes; one per cent basophiles and one per cent transitionals.

The patient was admitted to the hospital with a normal temperature and was discharged on the third day with a temperature of 100.6 degrees. He was re-admitted t othe hospital about two weeks later with another attack of severe pain in the upper left quadrant of the abdomen. The probable diagnosis was diverticulitis.

Dr. Tuthill was called in consultation this time and his examination revealed the same abnormalities as had Dr. Hamer's examination. His conclusion was that he was unable to substantiate the diagnosis of diverticulitis. He said he had seen a number of cases of obscure pain in the abdomen relieved by attention to foci of infection elsewhere. He believed that this case might respond similarly.

The patient's temperature rose to 103 while he was in the hospital. He had chilly sensations and complained of fulness and pain in the left side.

He had four teeth extracted. Proctoscopic examination was made with negative findings. Four urine examinations were made and all were normal except for a few pus cells. The blood culture was negative; the Wassermanns were negative; x-ray of the colon and of the chest showed no abnormalities. The Malta fever tests were negative.

The patient was definitely improved when he left the hospital, after being there eleven days. He continued to have attention to his teeth and there has been a marked improvement in his condition.

Dr. Hamer was of the opinion that Dr. Tuthill's conception of the case is probably correct and that the man will get entirely well when the sources of infection are cleared up. He has gained 20 pounds in weight and has had no return of the symptoms.

Case 5813 was presented by DRS. KENNEDY and GOODRICH. This was a man fifty-five years of age. For the past year he has passed. periodically, bright red blood from his rectum. The past three months he has passed dark red blood with every bowel movement. He says there was about one-half ounce each time. He often gets up at night three to four times because of the desire to evacuate his bowels, and only passes blood. He only has intense pain for a short time.

He has had the usual diseases of childhood: Diphtheria at 11; double pneumonia at six and pneumonia again at 11; and again at 20; he had the influenza in 1928 and was very ill; he suffers from severe constipation; he urinates three or four times a day and has frequent urinations at night; he has had a tonsillectomy operation; he had his right arm broken some 12 years ago.

The patient was normal in every way except for two abscessed teeth and a carcinoma of the rectum just below the junction of the sigmoid. The protoscopic examniation showed the growth to be about four to five inches from the anal orifice.

He was admitted to the hospital on the 13th day of May. An exploratory laparotomy was done on

the 16th, with the hope that the growth could be reached by this attack. A colostomy was done and the abdomen was closed as the mass was too low to reach by this approach. The mass was excised May 31 by the Kraske operation. It was a large nodular cancer, three inches long and nearlv occluding the lumen of the rectum. There was a midline incision and the coccyx and two lower segments of the sacrum were removed. An end to end anastomosis was done on the segments. A drainage tube was inserted up through the anus and rectum. Two cigarette drains were placed in the operative field. On the 19th of July the colostomy opening was closed. The abdomen was then closed. One cigarette drain was inserted in the wound.

The pathological report reads as follows: Specimen consists of a portion of the colon with a large papillomatous type of growth extending into the lumen. Sections show fibrous stroma supporting multiple layers of epithelium. In many places the epithelial cells are arranged in gland-like tubules. The cells are typical and in multiple layers, evidently representing a papillary type of adeno-carinoma.

The repeated urine examinations showed on one examination a granular cast and a few pus cells; two occasions slight traces of albumen were found. A stool examination showed nothing abnormal except the blood.

The patient made a rapid recovery and left the hospital in exceptionally good condition.

He had been examined a year before and no tumor was discovered at that time. Dr. Goodrich says that low down tumors are easy to recognize when examined for but the hi◦h-up tumors are often difficult to find. This tumor was high-up. It was suspected a year before but not found.

DR. WATKINS commented upon the successful outcome of this patient's condition and said that the surgical work was beautiully done. At the time of x-ray examination (which was not mentioned in the presentation of the case) he doubted that the lesion was operable. It seemed to him that there was not enough bowel to be brought down to unite with the lower segment. Such cases are more easily diagnosed by the proctoscope than by the x-ray, although this case was diagnosed by the x-ray. Dr. Watkins said that Dr. Goodrich has several successfully operated cases of this type going about the streets of Phoenix. In regard to the relative value of x-ray and surgery he said that in such cases as this surgery was the method of choice but in the event that the growth has extended so that it is inoperable, then x-ray will usually retard the extension of the process.

Dr. Goodrich speaking again said that he believed these cases should receive radiation after operation as this case will. He said that cancer of the rectum ordinarily extends by direct continuity rather than through the blood stream. In this case a wide resection was done and the bowel was brought down with little extra tissue to spare.

DR. HOWELL RANDOLPH complimented Dr. Goodrich on the excellent results obtained in this difficult case. He has seen a number of these cases and knows that they are unusually difficult.

Case 6583 was presented by DR. HOWELL RANDOLPH. This was a baby two years of age. It was brought to the hospital with the information from its parents htat the child had a high fever, cough, drowsiness and a disinclination to move itself.

Two months ago the child had an attack of what was diagnosed as pneumonia. She was seriously ill for several days; then improved. Since that time she has had periodical fever, and drowsiness during which time she would sleep very heavy, then awaken feeling better.

About ten days ago she developed high fever, somnolence and would scarcely let herself be moved. The child was fairly well nourished, with dry scaly skin on the abdomen. Respiration is frequent and rapid. Heart pulsation is pushed to the right. Percussion showed dulness over the entire left chest. Heart sounds are normal. Pulse 160. Abdomen is tender. Suggestive Kernig but this was interpreted as the result of the general toxic state. Fluoroscopic examination reveals a deep shadow in the left base which extends up and diminishes in density toward the apex. Aspiration from the left chest obtained small amount of brown pus with a foul odor. There were slides made from this showing acid-fast organisms. There was no gmrowth on culture. Diagnosis: Empyema.

DR. GREER saw the child in consultation and he noted a marked edema of the skin; he recommended an operation. The urine findings were negative except for 10-12 pus cells per field.

On August 27 under novocaine, a rib resection was done in the axillary line and a tube for either open or closed drainage was inserted. The immediate post-operative condition was not good. The drainage was relatively small. On the 30th an x-ray examination of the child was made and there was diffused density throughout the left lung. There were patches of irregular density. The irregular patches were perhaps consolidated areas in the lung showing through the general density. The drainage tube extends into the lower part of the pleural cavity. The heart and mediastimun are both pushed slightly to the right. The right lung appears normal.

The child ran an irregular temperature, as high as 105.2 and was not below 104 for four and one-half days. The pulse continued around 160-170 and respiration from 54-60. The child died on the fifth day.

Case 1600 was presented by Dr. L. C. BARLOW. She was first admitted to the hospital upon June 20 with a diagnosis of bilateral salpingitis, gonorrheal origin, with pelvic peritonitis. The chief complaint was pain in the right lower abdomen.

She had previous attacks in April, 1928 and in February, 1929 but not so severe as this attack. The patient's history was negative. The examination was negative except for a moist skin, and tenderness of the lower part of the abdomen. This was extremely tender. Muscle rgiidity is marked. A rectal examination revealed that the entire pelvis was extremely tender and there were masses on both sides corresponding to the areas of the tubes.

No gonoccoci were found in the vaginal smears. The patient had an irregular temperature, up to The patient had an riregular temperature, up to 102 and on the third day left the hospital at her own request with a temperature of 100. She was returned to the hospital again on July 18 with the diagnosis of bilateral salpingitis with abscess.

The physical findings were the same as before. The blood pressure was 100/70. The perineum was normal. Cervix was tender and in the midline and points anteriorly. Uterus was posterior, immovable and tender.

On the day of admittance she was operated on, the tubes and uterus being removed. Pelvis was markedly inflamed and full of adhesions.

On the 20th she was transfused because she was not doing well. Pulse was rapid and the patient was delirous and restless. She was given 700 cc. of blood by the indirect method. The pulse gradually came down and the patient's condition became more favorable and she made a satisfactory recovery from this condition.

The urine was negative. The blood showed 85 per cent hemoglobin; 4,100,000 reds and 22,000 to 34,000 whites. There was as high as 93 per cent polynuclears. On the 24th the patient developed a severe left side parotitis. Her temperature was high, 104 axillary; pulse reached 160. The temperature continued high, about 103 axillary and the pulse continued around 130-140 and on the 26th she developed a right-sided parotitis. Each was promptly opened with six-inch incisions; following this there was a gradual decline of both pulse and temperature.

There was a slow gradual healing and the patient was discharged on the 35th day. She then had had practically no temperature for ten days.

The interesting feature of this case was the parotitis. Most cases who develop this type of infection in the course of an operation rarely get well. This patient has nothnig worse than the scars upon her face.

DR. HAMER said that he had seen this case the first time she was in the hospital and that he believed the condition to be an acute gonorrheal infection. He undertook to keep her quiet and ice bags on her abdomen; but she would not do what she was told and left the hospital without his approval.

In response to a question from DR. GREER as to the type of organisms in the parotids Dr. Barlow said that the common opinion is that parotitis is a metastatic inflammation from the pelvic condition.

DR. SMITH asked the question as to how long salpingitis should wait before doing the inevitable.

Dr. Barlow in response said that each case is a law unto itself. It must be treated accordingly. He had been taught to wait as long as the patient is doing well but not to wait until she is in danger of dying.

Dr. Smith then asked why an acute gonorrheal abdomen is any different from any other acute abdomen. He implied that his opinion is that the treatment should be the same for the two.

DR. BROCKWAY said that gonorrheal infections in the female had nearly no mortality from going unoperated, and operations are not always inevitable.

DR. RANEY said that he had seen seven cases of acute gonorrheal salpingitis operated on in the early stage of infection and all of them died.

Case 6399 was reported by DR. KENNEDY. This was a man 38 years of age. He had been ill for a number of days before he entered the hospital. There was no definite reason for his being ill so far as he knew, but he did not feel able to be about.

Examination showed that the man looked ill, and that he had lost considerable weight. Eyes, ears and nose were normal. Teeth were in fairly good shape. Breath was fetid. Neck was negative. There were musical rales throughout the left chest, probably the site of an old tuberculous process. Heart was not greatly enlarged, no murmurs. The abdomen was firm and tense, no mases felt. There was tenderness over the colon and about the abdomen. Temperature was 101.8 on admittance and gradually declined day by day until at the end of the eighth day it rarely went above 99. His blood gave a positive Widal reaction.

He had an uneventful recovery and was discharged on the 20th hospital day.

The president of the staff said that this case had been put upon the program to call attention to the fact that we still have typhoid with us, much to our sanitation shame.

Dr. KENNEDY asked to report on recent literature on typhoid, spoke as follows:

(1) Nursing is probably the most important element in the treatment of typhoid.

(2) Hydrotherapy is the mainstay of our therapy. The "bath" combats hyperpyrexia, generally tones up the body, does much for the well being of the patient and promotes elimination of waste.

(3) Diet. In 1882 Van Hosslin concluded that typhoid patients absorb food readily. In 1904 Van Leyden and Klemperer found absorption in typhoid to be nearly equal to that of well persons. They could prevent wasting in their patient but they could not keep them in nitrogen equilibrium. Recent conclusions corroborate this. High caloric diet metabolic studies have shown:— (a) Total body metabolism increases with rise in temperature and lowers with fall. There is an average increase of 40 per cent in metabolism in typhoid. (b) Increased

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metabolism does not increase from food intake. On liberal diet it differs but slightly from that of fasting state. (c) Food has little or no dynamic action in typhoid. If protein is kept relatively low it does not increase heat production. (d) In typhoid there is toxic destruction of protein indicated by negative nitrogen balance. (e) It is impossible to maintain nitrogen equilibrium on high fats and protein. Three thousand to five thousand calories with high carbohydrates will maintain and often increase weight during febrile period. (f) Carbohydrates and protein can be absorbed readily, but fat in large proportion is absorbed slowly.

(4) Antipyretics are mentioned to be condemned for routine use. Coal-tar products in large amounts are deleterious.

(5) Serum: Chantemasse used serum of horses immunized to toxin of typhoid bacilli in 1000 cases with 4.3 percent mortality while during the same epidemic 17 per cent mortality prevailed. Rodet used a similar serum for conferring passive immunity and it seemed to shorten the course of the disease.

(6) Vaccine: Say uses a sensitized vaccine and in 98 cases 33 were shortened, 32 benefited and 33 not affected. Mortality was 6.6 percent. He collected results of 78 observers using same serum in 2582 cases. Sixty-five per cent were benefited and 11.6 percent had average mortality.

In Index Medicus for 1922 there is a report of 120 cases in whom were used Cornomia's vaccine with 7.5 percent mortality.

ORVILLE HARRY BROWN, M.D., Secy.

ST. JOSEPH'S HOSPITAL (Phoenix).

(October Staff Meeting)

The regular monhtly staff meeting was held on October 7th. with 36 members present. The meeting was called to order by Dr. D. Fournier, secretray, who read the minutes of the previous meeting and also the regular Monthly Analysis of Hospital Service.

After a discussion of some items of business, the regular staff conference, which was in charge of Dr. George M. Brockway, was entered into.

DR. H. T. BAILEY was asked to give any items of interest which he had brought back from the American Medical Association meeting in Portland. Some very interesting data on the eyes and the care of eye diseases was presented by him.

DR. E. PAYNE PALMER, who was also on the program for a similar report, was absent but sent in the following comments which were read:

While in Portland I attended all of the scientific meetings of the Section of Medicnie. one of the meetings in the Section of Surgery which was a symposium on gall bladder disease and one of the meetings in the Section of Gastroenterology and Proctology.

There were very many interesting papers but on the whole many were on subjects which are rather rare and not of a great deal of importance. There were three papers on coccidioidal granuloma. For a while this disease was known to exist only in California and it was thought to have been introduced there from South America. However, it has been reported in eight other states. If I remember correctly there had been something like sixty or seventy cases reported in California and only an occasional case in the other states. Of course the most plausible explanation of why it has not been reported in other states is the failure to recognize it. It is the consensus of opinion that this disease is contracted by coming in contact with the soil and is not infectious from one patient to another. The disease may run a long and insidious course and usually simulates tuberculosis' of the lungs, skin or bones. It is most commonly diagnosed at first as tuberculosis of the lungs. It is usually fatal.

There were two or three papers on malta fever. There was nothing new or of particular importance pertaining to this disease except the mode of infection. It was formerly thought to be contracted only by drinking goat's milk but it is recognized now as the same organism as the bacillus aortus that occurs in cattle and that it can be contracted by coming in physical contact with the disease as well as by drinking the infected milk.

There was considerable discussion on arterial hypertension with special reference to the essential type and the conclusions were that diet and drugs played the most insignificant part in the management of this condition. The most important factor was a reduction of the patient's mental and physical activities.

Dr. George Dock of Pasadena presented a paper in which he discussed a series of neuralgic symptoms which he attributed to the nasal ganglions. He also discussed, motor, sensory and vasomotor phenomena, including hay fever and asthma, as part of this symptom complex which has been known in the past as Sluder's syndrome. This discussion was similar to the one we had in Phoenix last winter by Dr. Hazeltine of Chicago.

Dr. William Robey of Boston presented a paper in which he advocated tonsillectomy during the acute attack of rheumatic fever. His contentions were that early removal of the focus of infection prevents danger to the heart which so seldom escapes when the disease pursues its usual course. By so doing it greatly reduces the period of sickness, so is of great economic value to the hospital as well as to the patient.

An interesting survey has been made by some of the attending men in Los Angeles County Hospital,

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in which they reviewed 1000 successive cases that were admitted to the hospital, in relation to protozoan infection in the human bowel. They found that eight per cent of these patients had intestinal protozoa. Of course, the important question in this matter was to determine how many of this group had pathogenic protozoa or how many had symptoms referable to this intestinal condition. This group of patients were suffering from arthritis, iritis, diarrhea, general debility and anemia. This phase of their examination has been ordinarily disregarded. The point raised was that if we were to disregard eight per cent of our patients who have chronically infected tonsils, we would be missing one of the most common foci of infection.

The symposium on gall bladder in the section of surgery precipitated a very spirited discussion. The conclusions reached by the surgeons were that the internists and general practitioners will not refer their patients for operation until the patient is either compelled by the severity of the symptoms or until they have suffered for many years and the infectious process in the gall bladder has spread so far beyond the limits of the gall bladder that many surgical failures result. It was also emphasized that the operation was merely the first step toward the relief of the patients and it should be followed by months and even years of careful supervision. If the percentage of surgical cures is to be increased, these patients will have to be operated on in the earlier stages of their infection.

The first paper in the Section of Gastroenterology was by Francis H. Redewill and J. E. Potter of San Francisco, read by Dr. Potter. They reported 30 cases of urinary infections which failed with the usual urological procedures and responded in their hands only after they had considered the colon as the focus of infection. They described methods of colon irrigation, and changing of the intestinal flora, and also by a process of physiotherapy in which they succeeded in having a lamp made from which the irritating rays from both the infra red and ultra violet have been eliminated. They claimed that they could pass this as far as the splenic flexure and found that it had a very definite effect on these septic colons which acted as a chronic foci of infection. The general discussion of this paper had a rather humorous ending when Dr. Frank Smithies of Chicago made some remarks.

Drs. Jordan and Lahey of Boston presented a very able discussion of the differentiation between gastric ulcer and gastric carcinoma and by the use of x-ray to arrive at the time when surgical intervention is indicated, that is, the time when the lesion is malignant and not a simple gastric ulcer.

Dr. Conner of Rochester reviewed a large number of cases of gastric achlorhydria and it was his contention that the absence of hydrochloric acid in the stomach was very often hereditary because it was more often found in blood relations and members of the family. He advocated the continual administration of hydrochloric acid in these patients as long as they lived as a possible prophylactic measure against pernicious anemia.

The scientific exhibits were equally as interesting and instructive as the presentation of papers and the discussion of same before the various sections. The fracture demonstrations put on by the Cooperative Committee on Fractures, in charge of Dr. Nathaniel Allison and Dr. Kellogg Speed of Chicago, proved to be one of the most interesting demonsrtations at the Portland meeting. I had the privilege of assisting in the demonstrations.

All available space around the demonstrations was crowded at all times by an interested audience who could ask questoins much more rapidly than they could be answered.

The methods of detecting fractures of the lower end of the radius, methods of reduction, the most approved method of treatment of supracondylar fractures, Potts' fracture and fracture of the shaft of the femur were the ones demonstrated. The simplest methods of diagnosis and treatment were advocated. Early active motion in and around the fractured joint, what the patient can and will do without pain, is advocated early in order to prevent deformity.

I will suggest that each and every one who can attend these meetings of the American Medical Association and try and get the habit of attending them annually. At these meetings you will find the best men of the country. These men attend because they wish to stay in close touch with the progress of medicine and in the various specialties and it is at these meetings that the new things are brought out and advocated long before they are published. When one gets to know these men personally, he can appreciate the work they are doing. One also meets old classmates and renews old friendships which is well worth the trip across the country.

DR. J. M. GREER presented Case No. 16863. This was a young woman, about twenty years of age, brought to the surgery about 9:30 p. m., June 9, in semi-conscious condition; she had been in an aeroplane accident. Pupils were contracted and equal. No bleeding from the ears but some from the

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mouth, though could not tell where it came from. Pulse was weak and patient evidently in severe shock. Nothing could be made out from chest examination. Leg was fractured. Evidence of some internal injury, possibly ruptured intestine. There was no gross evidence of skull fracture, but there was severe concussion. Spinal puncture was not done, though probably it should have been done. Temperature was 103 and reached 106 before death, which occurred at 2 p. m. the following day, less than 24 hours after admission to hospital.

Autopsy performed by DR. W. O SWEEK, in the absence from the city of Dr. Mills, the hospital patholgoist, showed the following:

Well developed and well nourished young woman of about twenty years. Dark complexion, fair skin. Rigor mortis has set in and the following marks and evidences of injury are noted:

There is a scar on the right side of the head corresponding very roughly to the parieto-frontal suture. At right angles to this is another scar going across the front of the forehead to the inner side of the left eye. This scar apparently extends down to the bone. There is marked ecchymosis of the upper and lower eye lids and also of the right lower lid. There is a small incised wound about one inch long and one-half inch deep on the right side of the scalp about one inch above the ear.

There is ecchymosis, discoloration and evidence of subcutaneous hemorrhage over the right chest extending from the clavicle over the sternum and to the breasts, and to some extent over the upper part of the breasts. The abdomen is somewhat distended. There is a lacerated wound about two and one-half inches above the right knee, irregular in shape and closed with sutures. There is an abrasion and contusion on the right shin at about the junction of the lower and middle third, and also on the dorsum of both feet. There is a compound comminuted fracture of both bones of the left leg and a fracture dislocation of the right foot.

The abdomen is somewhat distended. Upon opening there presents a rather clear fluid, pinkish in color. The viscera in situ present no gross lesions. The uterus, tubes and adnexa are normal in appearance. In the region of the hepatic flexure of the colon there is some infiltration of the peritoneum posteriorly. There is some bile discoloration in the region of the gall bladder but no evidence of the gall cyst. The gall bladder is well back under the liver and well over to the right and adherent to the colon, a congenital condition. The liver presents only slight evidence of trauma. The spleen is practically normal and presents some slight discoloration on the postero-inferior margin. The stomach is full of undigested food but presents no signs of gross injury.

Upon opening the chest there presents marked discoloration of the superficial areolar tissue and a fracture of the sternum at the level of the second rib. The pericardium is intact, no fluid in the sac, and the heart is normal in size, shape and position. The left lung is normal and crepitant throughout. There is swelling, discoloration and edema of the sents signs of congestion and the inner portion of the middle lobe is injected and discolored. The lung is crepitant throughout.

Skull opened by the usual incision. Upon elevation of the scalp the tissues are markedly discolored and the areolar tissue is filled with bloody fluid. There is swelling discoloration and edema of the scalp tissues and especially on the left side in the occipital region. There is laceration of the scalp in the frontal area and a small transverse mark on the frontal bone giving the appearance of a linear fracture of the outer table, without depression.

Over the left hemisphere:—There is marked subdural hemorrhage extending from the anterior to the posterior lobe, more marked in the posterior lobe. There are multiple petechial hemorrhages throughout the cortex and extending down to the left ventricle. There are multiple hemorrhages throughout the occipital lobe. Considerable edema is present.

Right hemisphere presents multiple hemorrhages especially in the cortex but smaller than those noted in the left hemisphere and not extending to the frontal lobe. There is considerable diffuse edema throughout both hemispheres. The cerebellum is normal in appearance and presents no evidence of injury or petechial hemorrhages.

Cause of death:—Multiple petechial hemorrhages of the cerebral cortex, with edema of the brain.

DR. H. P. MILLS commented on the autopsy findings, as follows:—

Concussion of the brain is a condition of immediate and wide spread loss of cerebral function following upon a blow on the head. The patient instantly loses consciousness, is pale, covered with sweat, temperature drops, pulse almost imperceptible and respiration almost suspended. The vital functions and the higher mental faculties are both involved so that often death appears to be imminent.

Boyd places these cases under three groups depending upon the autopsy findings:

1. When there is laceration of the brain, especially of the under surface of the frontal lobe, associated with more or less hemorrhage, the blood entering the subarachnoid space and showing in the spinal fluid.

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2. Cases where there are minute hemorrhages scattered throughout the brain, often evident only on microscopic study: such as were found in the war in men killed by bursting of high explosives.

3. Cases in which no lesion can be found in the brain. Injury to the spinal cord has been found in some of these cases. In cases where no gross or microscopic lesion can be found, we have to consider cellular compression from the blow on the skull. It is probable that marked cerebral anemia occurs, which accounts for the immediate symptoms.

In the present case the wide spread petechial hemorrhages indicates very extensive cerebral trauma which together with the pressure from the subdural hemorrhage, gives a quite conclusive cause of death.

DR. J. J. McLOONE presented Case No. 17337, for discussion. This was a case of sinus thrombosis and brain abscess and will be published in this journal elsewhere, so that the discussion is omitted here.

DR. R. B. RANEY presented Case No. 17335, of death from gas bacillus infection. The history began on August 5, with cramps in the lower abdomen, associated with nausea, followed by a vomiting spell. Pain was referred to the epigastrium and around the umbilicus, and seemed to migrate to the lower quadrant. On August 10, he complained bitterly of pain in lower right side, with considerable accompanying nausea. A large dose of Epsom salts was taken, followed by an enema, but instead of releif, the symptoms increased in severity, so he sought medical advice.

His general appearance was that of a man much sicker than the history would seem to indicate. Breath was markedly foul. Marked tenderness in lower right quadrant, with a mass which was diagnosed as an indirect, inguinal hernia, reducible. Patient states that this mass has been present for twenty years and has given him no trouble. There was some indication of free fluid in the abdomen. Among the special points of interest was that although the man thought he had obtained a bowel movement, he was extremely constipated.

Operation was performed by incision just lateral to the hernia, and the mass was found to be a direct inguinal hernia which was strangulated. This was reduced. On the day following operation, the patient's condition was very satisfactory and he seeemd to be going on to recovery. At this time the nurse called my attention to a small swollen area on the patient's arm. By evening this swelling had enlarged to the size of the end of my thumb, and within the next half hour increased considerably. It was punctured and the fluid discharged was bright orange in color. By night the swelling had extended to the axilla, and examination of the fluid from the puncture showed gas bacillus organisms (B. Welchii). Amputation was out of the question, owing to the critical condition of the patient, and multiple incisions were made. Death occurred approximately seven hours after the first swelling appeared.

DR. R. T. FRANKLIN discussed this case, to the effect that amputation was the only treatment of any avail in such cases.

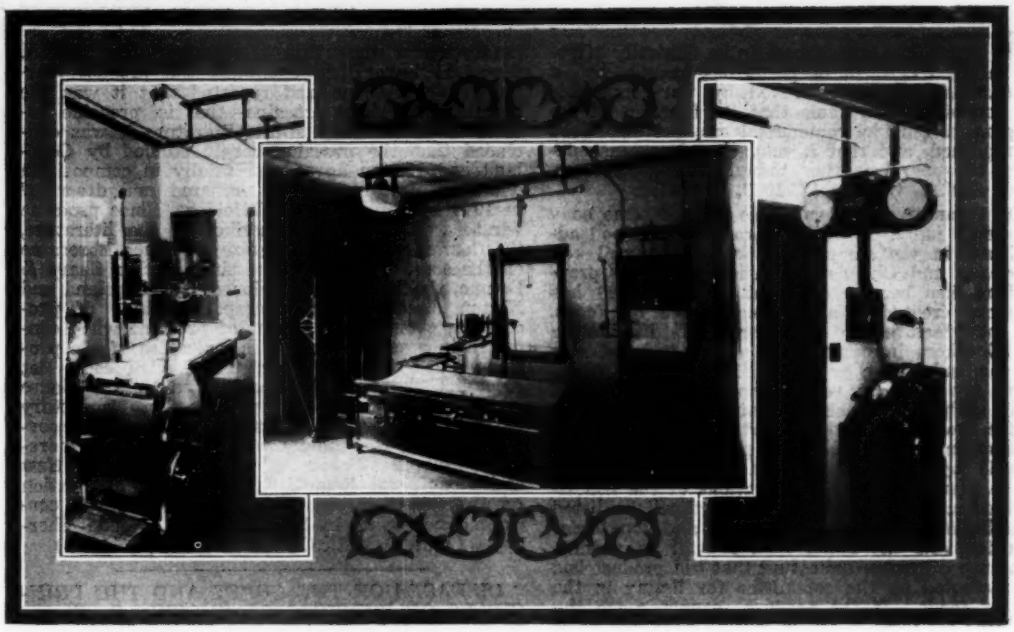
D. FOURNIER, Sec'y.

PROPAGANDA FOR REFORM

Anayodin. The Council on Pharmacy and Chemistry reports that Anayodin was presented by the Ernst Bischoff Co., Inc., with the statement that it was composed of iodoxyquinolin-sulphonic acid with the addition of 22 per cent sodium bicarbonate, and that from the information before the Council it appeared that Anayodin was a mixture prepared from approximately four parts of 7-iodo-8-hydroxyquinolin-5-sulphonic acid and one part of sodium bicarbonate, which during recent years has been used in the treatment of amebic dysentery while similar preparations under various trade names had before this been proposed as wound antiseptics. The Council informed the Ernst Bischoff Co., Inc., that, since it was not the discoverer of the preparation, the Council could not recognize a proprietary name for it, but, unless other conflicts appeared, its product would be accepted if marketed as chiniofon which name the Council had adopted for the mixture represented by "Anayodin," if acceptable tests were provided to insure its purity and uniformity and the advertising revised to meet stated objections. Ernst Bischoff Co., Inc. did not make its preparation acceptable and, accordingly, the Council declared "Anayodin' unacceptable for New and Nonofficial Remedies because it is an unoriginal preparation marketed under a noninforming name without an adequate statement of composition; because no evidence was available to show that its identity and uniformity are adequately controlled; and because it is marketed with therapeutic claims which are unwarranted. (Jour. A.M.A., October 5, 1929, p. 1065.)

Viosterol. Several preparations of irridiated ergosterol, given for its vitamin D effect, and christened "Viosterol, by the Council on Pharmacy and Chemistry, are now available on the market. Abroad the product is known by other names, and some distributors are attempting to force the foreign products on the American consumers. Long before anything definite was known as to its actual possibilities for good or harm in the human body, commercial firms attempted, as usual, to get it before the medical profession. When reports of the possible dangers began to appear in foreign medical literature, physicians who were using the product and representatives of the Wisconsin Foundation persuaded the promoters to withdraw the product until dosage and dangers could be established. Then when the time came to release the product again most leading manufacturers agreed to the use of the common name selected by the Council on Pharmacy and Chemistry as the name for the preparations that met its standards. Physicians must recognize the necessity for upholding to the fullest extent the necessity for upholding to the fullest extent the Council's devision regarding irradiated ergosterol. If this product is prescribed, the name to be used is "Viosterol" and the brand specified one of those accepted by the Council. Not "Vigantol,' not "Acterol." (Jour. A.M.A., October 5, 1929, p. 1066.)

Liver Extract.—The Council publishes a report of the Committee on Pernicious Anemia of the Harvard Medical School. This report states that in May, 1927, the Committee on Pernicious Anemia of the Harvard Medical School was organized to study the properties and to determine the clinical value of the fractions of liver that were being extracted, and to determine in what way a satisfactory product could be made available. Under direction of this Committee, Eli Lilly & Co. offered to manufacture one of the extracts developed. The function of the Committee was merely to supervise the production of a suitable extract of known potency until such time as the medical profession should have become accustomed to its use. The treatment of more than 100 cases of pernicious anemia with this extract indicated that a satisfactory product was available and it was accepted by the Council on Pharmacy and Chemistry for New and Nonofficial Remedies, under the name "Liver Extract No. 343." For the past year Eli Lilly & Co. has regularly produced lots of material every



Views of X-Ray Laboratory, Thomas-Davis Clinic, Tucson, Ariz. Installation by Los Angeles Branch of Victor X-Ray Corporation.

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one of which has been shown to be clinically effective in the treatment of pernicious anemia, by a standardized process approved by the committee. The committee now feels that its function of developing a reliable commercial product has been accomplished, and that it may therefore cease actively to supervise the manufacturing process. (Jour. A.M.A., October 12, 1929, p. 1144.

The Committee on Foods. The need of some body to express judgment of food products and food advertising, in the same way that the Council on Pharmacy and Chemistry considers medical preparations, has become apparent. The Council has therefore created a special committee on foods. The manufacturers of food products, distributors and all others interested in the promotion of natural food substances or of modified foods, for which claims are made in relation to the promotion of good health, will be asked to submit to the committee the products and the advertising material used in advancing their sale. If a product is found acceptable by the committee, advertisements of it will be permitted in the publications of the American Medical Association, the product will be listed in the books of foods similar to New and Nonofficial Remedies, and the manufacturers will be permitted to use a symbol indicating that the product has been accepted by the committee for listing in the book of foods. If the product cannot reach the standards set forth, a report will be published as is done for drug products, and advertising of the preparation will not be permitted in the publications of the American Medical Association. The work of the Committee on Foods should do much to carry still further the message of good hygiene and of scientific medicine. In begnining this work, the Council on Pharmacy and Chemistry again asks the complete support of the medical profession. Only by the sincere cooperation of the medical profession with the committee can it achieve the prestige necessary to complete attainment of its objects. (Jour. A.M.A., October 12, 1929, p. 1147.

The Antipellagric Vitamin. Evidence has been furnished that the so-called accessory food factor formerly designated as vitamin B and supplied in comparative abundance by yeast apparently contains, in addition to the antineuritic vitamin, a factor which promotes growth and cures and prevents dermatitis in rats; consequently it has been regarded as identical with the "P-P"" factor described by Goldberger and others as curative and preventive of human pellagra. The newest American designation of this is vitamin G—the vitamin B_2 of British biochemists. There is little doubt that both of these water-soluble vitamins are essential to growth and well being; and it seems reasonably certain that pellagra is due to a vitamin deficiency. It is now known that unheated yeast is rich in both and that cereals contain more vitamin B than vitamin G; milk and meat, the reverse. The vitamin G value of wheat and maize is low, as is that of dried legumes such as peas. Meat and egg yolk are richer in vitamin G than are the cereals, while liver and fresh milk are excellent sources of this dietary adjuvant. (Jour. A.M.A., October 12, 1929, p. 1149.)

Borocaine. The Council on Pharmacy and Chemistry reports that under the proprietary, nondescriptive name "Borocaine," Sharp & Dohme, Baltimore, market procaine borate, the boric acid salt of the base procaine. The product was placed on the market on the basis of work published by Copeland and Notton, who adopted the name Borocaine to designate the borates of various anesthetic bases with which they experimented and who, according to Sharp & Dohme, gave their approval to the British Drug Houses to manufacture procaine borate under the title Borocaine. The A.M.A. Chemical Laboratory examined the product marketed as Borocaine and reported that it was the borate of the base procaine—that is, procaine borate. From a study of the literature it was concluded that the procaine borate studied by Copeland and Notton agreed essentially in composition with the procaine borate prepared and described in 1910 by Einhorn and Uhlfelder. Since procaine borate was previously described in the literature, the Council could not recognize the name Borocaine on the score of novelty, and since neither Sharp & Dohme, the British Drug Houses nor Copeland and Notton discovered the therapeutic value of procaine or even the properties of procaine when contained in a solution in which ionization of the procaine salt does not occur, the Council could not recognize the name Borocaine under the clause which permits the recognition of a proprietary name for a previously known substance discovered to have therapeutic value. The Council therefore declared "Borocaine" unacceptable for New and Nonofficial Remedies because the application of a proprietary name to procaine borate is considered not to be in the interest of rational therapy. (Jour. A.M.A., October 26, 1929, p. 1309.)

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS. By George W. Norris, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Henry M. Landis, M.D., Professor of Clinical Medicine, University of Pennsylvania; Director of the Clinical and Sociological Departments of the Henry Phipps Institute of the University of Pennsylvania, with a chapter on the Tranmission of Sounds Through the Chest, by Charles M. Montgomery, M.D., and

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a chapter on the Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph.D., M.D. Fourth Edition, Revised. 954 pages with 478 illustrations. Philadelphia and London. W. B. Saunders Company, 1929. Cloth $10.00 net.

In the fourth edition of Norris & Landis's classical work, every effort has been made to keep the book abreast with the times. This has caused the addition of much new material and the revision of much that has appeared in former editions.

The pages on mycotic infections show some elaboration with additions indicating the growing impartance of this phase of lung disease. The reviewer was somewhat disappointed to find as little attention to the use of iodized oil in diagnosis of bronchiectasis; perhaps this is considered to be outside the field of this particular work.

Every general practitioner must make physical diagnosis of chest disease, and therefore, every one should have this book as one of the best reference works in its field.

W. W. W.

TULAREMIA. By Walter M. Simpson, M.S., M. D., F.A.C.P., Director of the Diagnostic Laboratories, Miami Valley Hospital, Dayton, Ohio; foreword by Edward Francis, Surgeon, United States Public Health Service. 154 pages, 53 text illustrations and 2 colored plates. Paul B. Hoeber, Inc., New York, publishers. Price $5.00.

This monograph on tularemia is very interesting, and an invaluable compilation of all the known data on the subject. For western men, such a work will be very welcome. It embodies in its historical chapter, the story of Dr. Ancil Martin's observations in 1907, which observations caused Dr. Francis to give to the Phoenix physician the title "Father of Tularemia."

The work is commended to all physicians who wish to become acquainted with this subject.

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What a happy Christmas gift for this child and for all the children to come after her! After years of tireless effort and many bitter disappointments, Behring in Germany, Roux in France, and other devoted scientists had discovered in this antitoxin a sure method, not only of *curing* diphtheria, but of rendering children *immune* to it.

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